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U.S. Medical Devices

Intuitive Surgical Inc

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Rating

Outperform

Target Price

ISRG **635.00 USD**

Intuitive Surgical: What do experts think about J&J's new surgical robot?

Medtronic and J&J have been pouring resources into their surgical robotics programs and are now within 1-2 years from market entry. We recently published a review of MDT's soft-tissue surgical robot (see link), which will be unveiled at an analyst day on September 24th.

Today, we perform a similar review on Verb Surgical, the joint venture between JNJ and Alphabet. JNJ has committed to commercialization of a general surgery robot in 2020.

In this note, we take the opportunity to (1) review robot-related commentary from JNJ management in recent years, (2) summarize of our conversations with robotics experts (surgeons, hospital administrators, engineers) who have first-hand experience with JNJ's robot, and (3) provide our key takeaways as JNJ prepares to launch the robot next year.

Investment Implications

We rate ISRG Outperform with a target price of $635. Penetration of the addressable market for robotic surgery is very low, and we forecast robust growth. Competition is beginning to enter, but Intuitive has built a strong moat over the last 20 years. We see multiple catalysts that can drive the stock in 2019, including new systems (SP and Ion), high-growth geographies (Japan and China), and new technologies (augmented reality and informatics). For more on why Intuitive Surgical is one of our top picks, see our recent "best ideas" presentation, our valuation deep-dives (Part 1 and Part 2), and our 2Q19 recap. Model: ISRG

We rate JNJ Market-Perform with a target price of $148. We continue to warm up to JNJ. Our neutral rating balances our bullish view on the Pharma business with our cautious view on Devices and more negative view of Consumer. In spite of ongoing litigation concerns, we believe JNJ can be a dependable safe haven during periods of market turbulence. For more on JNJ, see our recent thesis review, our SDC takeaways note, and our 2Q19 recap. Model: JNJ

Close Date	5-Sep-2019
ISRG Close Price (USD)	508.17
Target Price (USD)	635.00
Upside/(Downside)	25%
52-Week Low	430.24
52-Week High	589.32
SPX	2,976.00
FYE	Dec
Indicated Div Yield	NA
Market Cap (USD) (M)	58,568
EV (USD) (M)	55,939

Performance	YTD	1M	6M	12M
Absolute (%)	6.1	3.4	(7.0)	(5.3)
SPX (%)	18.7	4.6	6.7	3.0
Relative (%)	(12.6)	(1.2)	(13.7)	(8.3)

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EPS Reported	F18A	F19E	F20E
ISRG (USD)	10.99	12.23	14.39
SPX	159.61	162.91	179.71

Financials	F18A	F19E	F20E	CAGR
Operating Earnings (M)	1,537	1,691	1,985	13.6%
Net Earnings (M)	1,305	1,464	1,742	15.5%
Adj. Op. Margin (%)	41.28	38.56	38.86	
ROIC (%)	19.54	16.39	15.80	
Organic Sales Grwth (%)	18.67	17.75	16.49	

Valuation Metrics	F18A	F19E	F20E
P/E Reported (x)	46.26	41.56	35.32
P/E Adjusted (x)			
PEG Adjusted (x)			
EV/EBITDA (x)	33.99	30.40	25.99
Div Yield (%)	0.00	0.00	0.00

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DETAILS

We recently published a review of Medtronic's soft-tissue surgical robot, which will be unveiled at an analyst day on Sept 24th. We thought it would be valuable to perform a similar exercise for the general surgery robot from Verb Surgical, the joint venture between JNJ and Alphabet Inc's Verily Life Sciences. JNJ management has committed to commercialization in 2020.

Mirroring our note on the MDT robot, this note includes the following three pieces:

+ Synthesis of robot-related **commentary from JNJ management** over the past few years, including insights regarding tech/features, target procedure sets, potential commercial strategy, etc.
+ Summary of our recent **conversations with key opinion leaders** who have first-hand experience operating with JNJ's robot
+ Our **key takeaways** as JNJ prepares to launch the robot in some capacity next year

Summary views

Our ongoing discussions with key opinion leaders continue to validate the notion that customers are eager for competition in surgical robotics. Surgeons and hospital administrators agree that competition will be a good thing for the market. But merely coming to market won't be enough; to make a difference, we believe the competition needs to be compelling. Surgeons do not like to change if they can avoid it, and they have invested a lot of time and effort in building skills on da Vinci.

Ultimately, we expect both MDT's and JNJ's entry into surgical robotics will be market-expanding. We believe this is a highly attractive market with room for a few players. With that said, we do expect to see market segmentation based largely on cost and procedural complexity. Our research suggests MDT's robot may have some material shortcomings relative to ISRG's da Vinci platform, indicating that MDT may carve out a niche specializing in more cost-sensitive hospitals/geographies and in relatively simple (i.e., inexpensive) procedures. On the other hand, KOLs are generally impressed with JNJ/Verb's prototype, which many users believe comes closer to equal footing with da Vinci.

Recall that MDT has made a number of design trade-offs with its robot in an effort to prioritize (1) reducing cost as a barrier to robotics adoption (by achieving cost parody with laparoscopy), and (2) getting to market before the Verb rollout (by incorporating a number of off-the-shelf components into the robot's design). Meanwhile, JNJ has taken a different approach. Commentary from management makes it clear that the company's value proposition in robotics will be part of a broader "digital surgery" platform—which refers to the integration of surgical robotics, supporting software, and a smart/interconnected operating room. JNJ plans to "dramatically revolutionize surgery" by leveraging Alphabet's expertise in big data and AI to make surgery more predictable and more replicable—thereby improving patient outcomes. Meanwhile, many of the secondary and tertiary aspects of JNJ's strategy are similar to what we've heard from MDT, including: increased affordability, differentiated end effectors, a smaller footprint in the OR, etc.

It's easy—and understandable—to get caught up in all ways that MDT and JNJ could potentially leverage their late-mover advantage to target Intuitive where the company is most vulnerable. But it's important to remember that ISRG is not standing still. Management has been preparing for competitive entry for years, so we anticipate the company has formulated competitive responses. We have seen some of these materialize already (e.g., shift to operating leases and usage-based arrangements), and we expect Intuitive has a few more tricks up their sleeves (e.g., augmented reality, machine learning, maybe a new low-cost system?).

We believe that Intuitive has built strong barriers to entry during the 20 years of market leadership in robotic surgery. That said, we are intrigued by JNJ's digital surgery strategy. And Auris brings a strong set of assets to JNJ's program. JNJ management has repeatedly indicated that being "right" is more important than being "fast" in this case, and we expect management to take their time developing a differentiated robotic surgery platform. We see upside to JNJ numbers once more is known about the company's digital surgery platform.

Whatever happens, we continue to have conviction that it will take multiple years for a legitimate competitive threat to ISRG to materialize. Initiating a limited commercial rollout is just the first step for MDT and JNJ, and many investors underestimate the time required to build out procedures, gather evidence, gain international approvals, train surgeons, etc. Intuitive has built a formidable competitive moat over the last two decades, and we expect the company to maintain its leadership position in the robotic surgery market for the foreseeable future.

SYNTHESIS OF JNJ MANAGEMENT COMMENTARY

ROBOTICS TIMELINE: FROM DISMISSAL AND SKEPTICISM TO STRATEGIC PRIORITIZATION

Surgery is the largest business within JNJ's Medical Devices segment, accounting for 37% of device sales (and 12% of overall corporate sales) in 2018. Like MDT Covidien, JNJ Ethicon is a market leader in traditional open and laparoscopic (i.e., non-robotic) surgery. For both companies, entry into the soft-tissue robotics market will entail heavy cannibalization of existing procedure volumes. It therefore comes as little surprise that both have been late to the party. Over time, however, the messaging from both companies around surgical robotics has evolved from dismissal and skepticism, to limited acceptance, to what today can be safely described as strategic prioritization.

During the early days of Intuitive's rise, JNJ (like MDT) largely dismissed the mainstream potential of robotics in general surgery. But after watching ISRG steadily take share from open surgery and laparoscopy for the better part of two decades, both companies eventually threw in the towel. They are now racing to catch up.

While MDT and JNJ dithered, ISRG rolled out four generations of the da Vinci platform—and the company continues to drive innovation in the field and extend its lead with new instruments (e.g., stapling), robotic systems (e.g., SP, Ion), and enabling technologies (e.g., Iris augmented reality technology).

JNJ management first began to acknowledge the potential viability of robotics in general surgery in the early 2010s (Exhibit 1).

EXHIBIT 1: **JNJ management hinted at a potential interest in robotic surgery as far back as 2010**

- *"Certainly, there are lot of new [surgical] modalities out in the marketplace today, a lot of them are very early… [including the] next generation [of] minimally invasive surgery… We're excited by all the innovation that's being done in that area, because I think it helps to grow the market faster..." – K. Licitra 6/3/10*
- *"Our focus is to really invest across the broad spectrum of the possible solutions [in minimally invasive surgery]… We continue to look at all the different modalities that are out there and different technologies that are out there. I'm not going to get into specific detail today in terms of exactly what we're investing in, but we're certainly well aware of all of the different ones out there, and whether or not they might have a play in our portfolio in the future." – K. Licitra 6/3/10*

Source: JNJ 2010 Investor Day

As of 3Q 2012, management was emphasizing the strategic importance of (1) cost, (2) end effector technology, and (3) external partnerships (Exhibit 2).

EXHIBIT 2: **Initially, management emphasized the importance of cost, end effector technology, and external partnerships**

- *"So, our approach [to robotics] is a three-pronged approach. So, first… there is a natural balance around where a laparoscopic versus robotics fits in… [Robotics] enables [surgeons] to do more procedures that may not have as strong laparoscopic skills, but at the same time there is more data coming out to say where is it cost effective and where is it not cost effective?... Two is what we call our… end effectors strategy, which is, if you think about the devices that are actually doing the tissue effect, so whether it's an energy device that's doing cutting and sealing, a stapling device, or a suturing device, we feel that we can do that better than the competition… And then third is we're looking at let's explore opportunities and partnerships in robotics, because we do think that there may be some opportunities for disruptive plays." – G. Pruden 9/10/12*

Source: 2012 Morgan Stanley HC Conference

After a few years of internal development and limited robotics-related news flow, JNJ announced the formation of Verb Surgical Inc. in collaboration with Alphabet Inc's Verily Life Sciences in December 2015. The announcement was a major step for JNJ, and it put an exclamation mark on the "partnerships" prong of the company's strategy in surgical robotics. It was also a strong signal to the market that management was finally serious about prioritizing the robotics program and competing with Intuitive.

EXHIBIT 3: **The formation of Verb (in collaboration with Alphabet Inc's Verily Life Sciences) gives JNJ access to world-class data analytics capabilities**

- *"Johnson & Johnson today announced that Ethicon, a medical device company in the Johnson & Johnson family of companies, has executed a definitive agreement to enter into a strategic collaboration with Google, Inc., working with the Life Sciences team on advancing surgical robotics to benefit surgeons, patients and health care systems… The companies seek to develop new robotic tools and capabilities for surgeons and operating room professionals that integrate best-in-class medical device technology with leading-edge robotic systems, imaging and data analytics." – JNJ press release 3/26/15*
- *"[Our collaboration with Google] is a continuation of what we discussed at the MD&D Business Review Day a year ago… And I think that's going to provide us some acceleration to the plans we were already anticipating… We would expect this collaboration would take I would say several years for us to come to market with the new type of robotic surgery that we think will dramatically revolutionize surgery. So, I think it'll take some time to do that. But we're accelerating our efforts there, and I'd say it's a couple of years away." – D. Caruso 4/14/15*

Source: JNJ press release archives, JNJ 1Q15 Earnings Call

After the Verb announcement in 2015, JNJ management initially guided to being "a couple of years away" from launch (see Exhibit 4).

EXHIBIT 4: **After the formation of Verb in 2015, JNJ initially guided to launching the robot in 2017-2018…**

- *"We see [the general surgery robotics platform] as really not something to have an impact, where I would say over the next six months to 12 months. This is likely more over a two- to three-year-plus timeframe." – A. Gorsky 7/14/15*
- *"In terms of the development stage, yes, we're in the phase where we are integrating… our technology with the Google technology… from a systems-engineering perspective, and integrating informatics into the design of our robot. So, we're looking, I would say…on the earlier side of [a 1-5 year] range… I would say it's the next couple years. We'd obviously like to accelerate that, but we want to make sure that we stay true to our value proposition." – G. Pruden 10/13/15*
- *"[The robot is] in research and development, there's prototypes developed. I would say it's a couple years away from actually hitting the market." – D. Caruso 2/23/16*
- *"With the transition from concept development to product development with the creation of Verb, we're in full swing in terms of product development. We're scaling up in terms of capabilities in hiring… We have an important milestone at the end of the year, when we transition from concept development to full product development… And at the end of the year, our critical milestone is to put the system together that feels like, looks like, works like a prototype." – M. del Prado 5/18/16*
- *"We still hope to be the second robotics player in the marketplace. But more importantly [our focus is on] really transforming the offering. There's not only the extension of the human hands, which is what we have today. But how do we transform the marketplace to add data analytics to add decision-making tools, to be able to make the surgeries more democratized, more reproducible, and better outcomes?" – M. del Prado 5/18/16*
- *"Verb Surgical Inc. announced today that the company has demonstrated its first digital surgery prototype… The digital surgery platform included all elements of the company's five technology pillars: robotics, visualization, advanced instrumentation, data analytics, and connectivity – developed by Verb and its collaboration partners." – Verb Surgical press release 1/26/17*

Source: JNJ 2Q15 Earnings Call, JNJ 3Q15 Earnings Call, 2016 RBC Healthcare Conference JNJ 2016 Investor Day, Verb Surgical press release archives

However, in 2017 JNJ's launch guidance was revised to 2020, and since then, management has been generally consistent in targeting an initial rollout at some point in 2020 (see Exhibit 5).

EXHIBIT 5: **...but in 2017, JNJ's launch guidance was revised to 2020**

- *"[The general surgery robot] probably won't be in your model until 2020, to be honest with you, because the reality is that – that particular deployment, but we're going to be doing that work with and we will have systems deployed in hospitals before then, but it won't move the needle [until 2020]." – S. Peterson 6/15/17*
- *"The working prototype was already available at the end of last year. And in fact, I know Alex [Gorksy] actually tried it out. So, we're not behind there, we're actually on track with that working prototype." – D. Caruso 7/18/17*
- *"Capitalizing on the unique strengths of Johnson & Johnson, of Alphabet and Verb, we are designing a best-in-class differentiated at launch and we are on track to be in market by 2020." – M. del Prado 5/16/18*
- *"2020 is, we're going to be in market, in major market globally… We're now in conversations with both the FDA and the notifying bodies of Europe… We're also engaging the regulatory authorities of the major markets in Asia. So, we now understand 'what will it take from a clinical perspective, regulatory perspective to get there' and we will be in one of those markets by 2020." – M. del Prado 5/16/18*

Source: 2017 Goldman Sachs Healthcare Conference, JNJ 2Q17 Earnings Call, JNJ 2018 Investor Day

Over the last year, JNJ management has been clear that the company is playing the "long game" in robotics, having referred to robotics as a "midterm play" and as just one component of a broader "digital surgery" platform that is expected to evolve over the course of "the next 5, 10, 15 years" (see Exhibit 6).

EXHIBIT 6: **JNJ management expects the digital surgery revolution to extend through the 2020's and beyond**

- *"Materiality is tough within a $27 billion business. But rather than give you a specific date of when we can hang our hat on it, I think what we're doing is we're playing for the long game. So, we see this at the end of the next decade. Nothing is going to take that long to be material to J&J. But that's how we're thinking about this, how can you have an integrated network that's much more impactful on the healthcare system overall that leads to better efficacy at lower cost." – J. Wolk 12/5/18*
- *"We believe we continue to be on track [with Verb] going forward… You're going to see continued news about our robotics platform over the course of 2020 and beyond, but what's so important about this is we're taking an outlook that digital surgery will be an important dynamic for the next 5, 10 and 15 years. And what we want to make sure is that we get out in a timely manner but that we're also out in a manner that ensures we're competitive and ensures, ultimately, that we're making an even bigger difference in this area as we go forward." – A. Gorksy 1/22/19*
- *"Innovation is really the core of our plan in terms of getting to those above-market levels in 2020. Robotics, we remain very excited about. I would say that's more of a midterm play. It's not as significant as it relates to that 2020 [growth] objective." – C. DelOrefice 3/14/19*

Source: JNJ 4Q18/1Q19 Earnings Calls, 2019 Barclays Healthcare Conference

More recently, we sense some expectations management from JNJ, as the company has begun to emphasize that it's not about getting to market fast, it's about getting to market with the right robot (see Exhibit 7). Along these lines, JNJ management have repeatedly mentioned ongoing work by Dr. Fred Moll to reassess broader robotic programs at JNJ and ensure the company is maximizing the value of the cards they are holding. Dr. Moll co-founded Intuitive and came to JNJ via the Auris acquisition. Some investors believe the work Fred is doing to reassess programs (e.g., to integrate concepts/technologies from Auris into the Verb platform) may lead to a better robot but may also delay the timeline.

Our conversations with JNJ support this view that the 2020 timeline may slip. The company emphasizes that it "would be a waste not to step back and reassess" given new assets from the Auris acquisition. To questions about timeline, management notes that while a major-market launch in 2020 is still the "official" timeline, they are "looking at this now and looking to provide an update later this year or early next year."

Though it's possible it will come sooner, we currently expect JNJ to initiate limited launch of the Verb platform beginning in 1H 2021 (i.e., about a year after MDT initiates the first phase of its limited OUS rollout). We do not expect meaningful revenue contribution until later in 2022.

EXHIBIT 7: **Over the past couple of months, JNJ has emphasized that getting the platform "right" is more important than getting to market quickly, suggesting the timeline may slip past the 2020 launch target**

- *"So, as I mentioned earlier on the call, we're real pleased with the Auris Health acquisition. It's off to a great start. Not only did we get some great products there and some great technology, but we secured one of the pioneers with respect to robotic surgery in Dr. Fred Moll and his team. So, they're currently looking at and assessing all of our platforms. We think it's prudent of us to utilize that expertise to look at not just what we're doing for the Monarch Platform in lung cancer and bronchoscopies, but also take a look at Orthotaxy, as well as our partnership with Verily to see how we can make sure that* ***it's not a matter of coming to market fast, but coming to market best****. And so, we want to make sure that we've got a differentiated product, one that competes with the current product offerings that are out in the marketplace for the next three, five, 10 years down the road. So, that's how we're approaching it." –J. Wolk 7/16/19*
- *"We would be fools to not take full advantage of what Fred's mind [in terms of] getting him to look at our partnership with Verily, looking at everything we're doing in orthopedics, working with our lung cancer initiative. So we're in keeping all of the teams very focused on milestone attainment, and we have a very small team assessing how do we create more collective value together. So it's not a distraction or we're progressing milestones. I mean, we just had over the past 60 days, we've had over 35 different surgeons from around the world working on our Auris platform, working on our Verb Verily platform, doing end-to-end procedures in general surgery, in urology, in thoracic with very positive results. We've been actively engaged with the FDA authorities on both platforms. We are advancing full steam ahead on the development programs… I get asked a lot of questions around 2020 right now.* ***We're not changing from that date, but we are going through a thorough assessment to see how do we create the most amount of value, not just in year one, but quite frankly, this is about the next 10, 20, 30 [years] – decades of really changing the standard of care****." –A McEvoy, 9/6/19*

Source: JNJ 2Q19 Earnings Call, 2019 Wells Fargo Healthcare Conference (emphasis added)

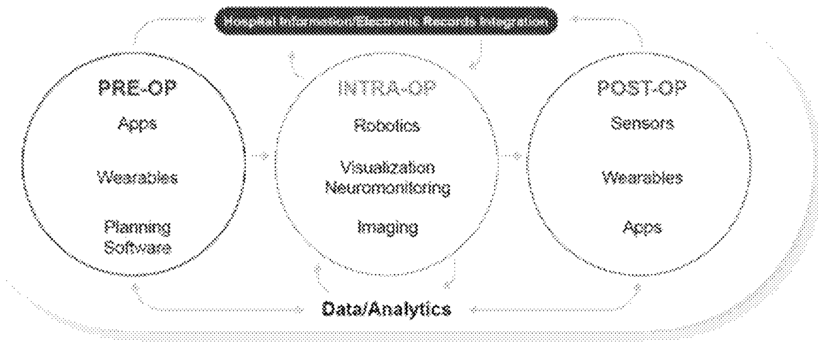
Note that while the Verb collaboration was an important first step in JNJ's attempt to develop a truly differentiated robotics platform, it hardly guarantees success—even with a partner as capable as Alphabet. In our view, barriers to entry in robotic surgery are formidable given ISRG's first-mover advantage and 20-year head start. Despite JNJ's history of leadership and innovation in open and laparoscopic surgery, robotics is a fundamentally different arena, and one that requires fundamentally different expertise. In our view, MDT and JNJ have a lot of ground to make up, and both will need to work hard for the right to compete in this market. Intuitive has been singularly focused on soft-tissue robotic surgery for twenty years.

Fortunately for JNJ shareholders, we believe management recognizes that the only way to take meaningful share from ISRG is to offer surgeons a clearly differentiated value proposition—rather than merely developing a "me too" robot to check the box. The trade-off, naturally, is speed to market. And MDT now looks poised to commercialize their robotics platform before JNJ.

JNJ INTENDS TO TRANSFORM ROBOTIC SURGERY INTO DIGITAL SURGERY

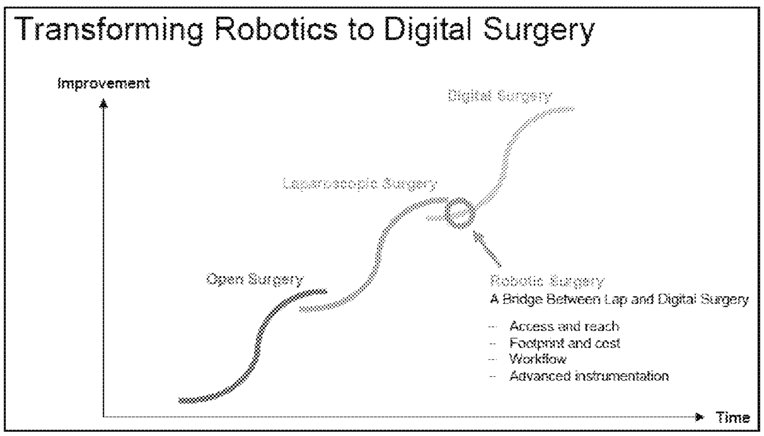
As was hinted at in the inaugural Verb press release, JNJ has bigger aspirations than simply launching a general surgery robot. In fact, robotics is just one facet of JNJ's ambitious plan to revolutionize surgery over the coming years and decades. Specifically, management believes that JNJ can offer compelling value proposition in robotics as part of a broader "digital surgery" platform—which refers to the integration of surgical robotics, supporting software, and a smart/interconnected operating room.

EXHIBIT 8: **In the company's Digital Surgery strategy, JNJ is focused on improving surgical outcomes by leveraging data pre-operatively, during procedures, and post-operatively**



Source: JNJ May 2018 Investor Day

EXHIBIT 9: **Management views robotic surgery as a "bridge" between lap and "Digital Surgery"**



Source: JNJ May 2018 Investor Day

We are intrigued by JNJ's vision of digital surgery, and we agree that leveraging AI and informatics has the potential to improve patient outcomes beyond what robotics alone can achieve. Some early examples of JNJ's efforts in this area include:

(1) **C-SATS** (i.e., Crowd-Sourced Assessment of Technical Skill): a cloud-based, AI-enabled surgical skills assessment system that allows for best practice sharing among surgeons

(2) **Health Partner** platform: a digital ecosystem (i.e., website, mobile app, care portal) that helps guide patients through surgical preparation and recovery, while also enabling real-time interaction with care providers

(3) **SPI** (Surgical Process Institute): provides digital, standardized workflows and checklists for surgeons to reduce variability and improve patient outcomes

JNJ has not been shy about setting high expectations for its digital surgery platform. Management have called it a "true quantum leap in surgery", a "superior surgical experience", and have compared its disruptive potential to the evolution from "the mainframe computer to mobile digital devices" (see Exhibit 10).

EXHIBIT 10: **JNJ's robotic surgery platform is part of a grander vision of "Digital Surgery"—which refers to the integration of surgical robotics, supporting software, and a smart/interconnected operating room**

- *"We can see a future in which the surgeon is no longer isolated in the OR, but through our system, we'll be able to connect to critical data, imaging and diagnostic information; information that will help the surgeon make the best, most accurate decisions as and when they're needed." – G. Pruden 10/13/15*
- *"We think what's available today is really the model that's more like the main frame computer 50 years ago. We intend to go to the iPad version, and that's what we want to launch. With a more integrated informatics [and] diagnostics…that are available for the surgeon around the world at a lower cost to serve." – G. Pruden 10/13/15*
- *"The key differentiator of our robotics platform is in fact this partnership with Google that allows the robotic platform to have navigation techniques and data capture and algorithms that make the robots smarter and smarter and smarter each time a surgery is performed—and the data can be shared." – D. Caruso 2/23/16*
- *"We believe that we understand technology better than our competitors do, because of all the work that we do and how we partner with tech companies. And we believe that we actually can, therefore, do this in a different way and be more successful over time." – S. Peterson 6/15/17*
- *"We intend to transform robotic surgery into digital surgery… If I only have one analogy for you, I would say it's like going from the mainframe computer to mobile digital devices. So, we're going…from simply enabling surgical jobs, to building an intelligent connected operating room environment. We are poised to disrupt the fast-growing robotics market. The Verb platform represents a true quantum leap in surgery." – M. del Prado 5/16/18*
- *"Robotics was really an extension of your human arms to be able to perform task that you could not do, because of the limited spaces. However, digital is all about capturing the information that goes on in the operating room, take advantage of the pre-operative information to be able to guide the procedure more precisely and be able to analyze information after the procedure and feed it back to make surgeons better, who are they on their best day and within healthcare systems also improve that." – M. del Prado 5/16/18*
- *"We also have a partnership with Verily to really create kind of an unparalleled connected system that will allow this image-guided, smart digital surgery platform that really changes how surgeons do pre-surgical planning, intraoperative surgical planning and then post-op planning to really make the surgery safer, more efficient and to really improve the experience." – A. McEvoy 2/28/19*

Source: JNJ 3Q15 Earnings Call, 2016 RBC Healthcare Conference, 2016 UBS Healthcare Conference, 2017 Goldman Sachs Healthcare Conference, JNJ 2018 Investor Day, 2019 SVB Leerink Healthcare Conference

Importantly, however, JNJ does not yet possess the requisite data to execute on this vision of digital surgery, so it will not be a competitive advantage right off the bat. In effect, JNJ will be asking customers to sign up for a robot so that the company can start the process of collecting data. However, the robot is being designed from the ground up to eventually integrate into JNJ's digital ecosystem. We believe this is a superior design decision than accelerating the development timeline and later retrofitting the robot, but we also acknowledge that this may be the difference between JNJ being the second or the third market entrant.

Notably, Intuitive has been collecting data on procedures since it began placing robots twenty years ago, and the company has various amounts of data on over six million procedures. Intuitive has already begun to use data to help hospitals identify best practices and improve outcomes. JNJ's vision for Digital Surgery is clearly more expansive than the scope of Intuitive's current data-related offerings. But it remains to be seen whether JNJ can build data collection capability and useful applications that can overcome Intuitive's current advantage (i.e., procedure database and applications).

EXHIBIT 11: **JNJ's data analytics capabilities won't be a competitive advantage right off the bat; the company will effectively be asking hospitals to sign up for a robot so they can start the data collection process**

- *"We're not just creating a robot, we're creating systems integration for the future. Because if you want to deliver against that capability, we have to have an integrated plan to deliver against machine learning, all that information management. If you don't do that... from the beginning, you can't do that at the end." – M. del Prado 5/18/16*
- *"At launch, there will be limited clinical information. However, because of this digital ecosystem that we're building, our ability to capture information, be able to analyze that do real world evidence immediately, will be harnessed and will move very rapidly." – M. del Prado 5/16/18*
- *"[Robotics] enables surgery, but I don't know that it leads to a better outcome. There's no data that suggests that. We want to have platforms that generate data that suggests it's a better outcome for the patient. There's better visual acuity. It becomes part of an integrated network. So, each surgery that's performed learns and informs the next surgery in that network." – J. Wolk 12/5/18*

Source: JNJ 2016 Investor Day, JNJ 2018 Investor Day, Citi 2018 Healthcare Conference

A SMALLER FOOTPRINT IS INTENDED TO INCREASE UTILIZATION—AND DECREASE PER-PROCEDURE COST

JNJ management has repeatedly emphasized affordability as a key pillar of the company's differentiated strategy in robotic surgery. In fact, before the formation of Verb in late 2015 (and the resulting emphasis on digital surgery), most of JNJ's robotics commentary was centered around improving per-procedure economics. Management sees an opportunity to lower hospitals' costs "in terms of disposables as well as capital".

EXHIBIT 12: **From the beginning, JNJ has identified cost as a barrier to robotics adoption**

- *"I think [robotics] is going to have to also be more cost-effective than it is today, because if you look kind of the installed base for robotics, it's really very developed market focus. I mean, I think 80% of the all the installations are in both U.S. and Western Europe. And that's for a reason... Longer term, we will be looking at an opportunity to enter the market where we can create value for our shareholders." – G. Pruden 1/22/13*
- *"I'm not sure [robotics] is the right answer for all procedures, because we are getting into a very cost-effective modality right now, based on procedures. And... I think our customers are really asking for value, which is don't just show me that you have a good outcome, show me that you add value to our system, as well." – G. Pruden 1/22/13*
- *"I think there is still a lot of unmet need based on the current model of robotics. It has enabled minimally invasive surgery to be done where penetration has been low, prostatectomy, hysterectomy. We believe that it can enable difficult surgeries, cancer surgeries for example. But in the general surgery space will it replace base laparoscopic surgery in cholecystectomy of appendectomy? I don't think the cost will justify it, quite frankly." – M. del Prado 5/22/14*

Source: JNJ 2013 Investor Day, JNJ 2014 Investor Day

It is clear that a reduced footprint in the OR will be a key component of this strategy. JNJ is betting that improvements with respect to ease-of-use and mobility within the OR will help increase robot utilization—thereby decreasing per procedure cost (as the capital equipment charge is amortized across a larger number of procedures).

EXHIBIT 13: **A smaller footprint within the OR will be a key component of JNJ's strategy to improve per-procedure economics in robotic surgery**

- *"I do think that there are opportunities [in robotics], not just for lower cost… but [for] improvements in functionality, ease-of-use and movement within the OR, right?... The analogy that people have said to me is where we are in robotics today is where we were 50 years ago with computers that took up the entire room. You are going to get to a point where it's going to be a laptop size sometime in the future." – G. Pruden 5/22/14*
- *"We also think there is some inherent limitations to today's robotic surgery environment. When you frankly look at the size and the scale of some of the existing innovation and if you look at what's happened with other technology platforms, as they have become smaller, more flexible, more mobile, and frankly, have a better ability to integrate various activities around the OR, that's where we think we can really make a difference." – A. Gorsky 7/14/15*
- *"If you look at the robotics installed base as it is today, it's very much focused on the developed markets versus the emerging markets and that's because cost to serve is disproportionately out of balance. And we think that there are opportunities to have a much smaller footprint in terms of a technology, a lower cost to serve in terms of disposables as well as capital that we think can play across a broader range of surgical procedures in a cost-effective way." – G. Pruden 10/13/15*
- *"We don't believe the capital play here for our innovation is going to be $2 million per hospital. So, we're going to provide a lot more flexibility in terms of that… We have decided that the terms of our value proposition, which will be a lower cost to serve, [and] a smaller footprint." – G. Pruden 10/13/15*
- *"As the largest surgery business in the world and with our unique smaller footprint, more flexible design than system on the market, we aim to drive greater global access to hospital operating rooms." – P. Shen 5/16/18*
- *"The robots of today are large. They're very expensive. They take a tremendous amount of training to be able to deal with them. They don't shorten the procedure; they lengthen the procedure. Clinical outcomes have not been demonstrated to be better; and more importantly they're also not mobile from one operating room to the other operating room." – C. Roemer 12/12/18*

Source: JNJ 2014 Investor Day, JNJ 2Q15 Earnings Call, JNJ 3Q15 Earnings Call, 2016 RBC Healthcare Conference, JNJ 2018 Investor Day, BMO 2018 Healthcare Conference

JNJ'S VALUE PROPOSITION IN ROBOTICS IS HEAVILY TIED TO THE QUALITY OF ITS END EFFECTORS

Like MDT, JNJ management has indicated that differentiated end effectors will be central to the company's value proposition in robotic surgery. Covidien and Ethicon are market leaders in end effector innovation, and both MDT and JNJ like to emphasize the barriers (e.g., years of investment, resources, know-how, etc.) faced by competitors—ISRG included—attempting to build a competitive end effector portfolio from the ground up. While ISRG's end effectors have improved considerably in recent years, da Vinci users still point to the company's end effectors as a potential area of vulnerability.

EXHIBIT 14: **Like MDT, JNJ is expected to leverage its strength in end-effector technology**

- *"Our plan right now in terms of robotics is kind of two-step and twofold. So first and foremost, it's around we're looking at opportunities to partner with robotics in what we do best, and where our capabilities are, and where we can bring value. And that is what we call the end effectors. So, on the end of the robots, we have devices that create a tissue effect. They seal tissue, they cut tissue, they bring tissue together. That's the business that we're essentially in, in producing both staplers, endocutters, energy devices, sutures – that's our world… That is what we do best, and that's the end of the market where we're going to lead and we're going to drive." – G. Pruden 1/22/13*
- *"One [prong of our strategy in general surgery robotics] is an end effector strategy…I am really interested in the aspect of the tissue effects of the business—so cutting, sealing, dissecting, stapling, sewing tissue. We actually have a partnership with the Intuitive team on certain aspects of that, which is really good. But we're also going to pursue our own de novo approach…" – G. Pruden 5/22/14*
- *"We're already in the market for robotics… in terms of particular procedures where our Ethicon products are used at the end of the robot, at the actual procedure end of the robot. So, we'll continue to do that [as we develop our own robotics program internally]." – D. Coruso 4/14/15*
- *"With our proven capability in advanced instrument, in combination with 3D HD visualization, our system is being designed with aim of increasing surgical efficiency and confidence across surgical procedures." – P. Shen 5/16/18*
- *"[We're addressing common complains re] advanced instrumentation, because the magic moment is when an endocutter is fired or an energy device is fired. And you've heard from customers that they're making compromises today because of the lack of availability of advanced instrumentation. We're going to deliver those as well." – M. del Prado 5/16/18*

Source: JNJ 2013 Investor Day, JNJ 2014 Investor Day, JNJ 1Q15 Earnings Call, JNJ 2018 Investor Day,

ACCESS/REACH & TARGET PROCEDURES

While JNJ has not been particularly specific about procedural targets for the robot, management commentary has touched on a broad array of potential procedure sets. What the initial focus looks like when the robot first launches is unclear, but we get the sense that JNJ's long-term goal is to be able to do any procedure that Intuitive can do.

On one hand, JNJ's end-effector-focused strategy seems to suggest the company could create an advantage in more complex procedures where complex instruments are necessary (e.g., staplers, vessel sealers). On the other hand, JNJ's cost-focused strategy suggests the company's greatest advantage may be on simpler procedures, where Intuitive may be unlikely to match JNJ's lower per-procedure prices.

We believe JNJ is more likely to focus on more complex procedures at the outset to demonstrate the capability of their system. But we would anticipate rapid expansion to broader sets of procedures.

EXHIBIT 15: **JNJ's robot will provide surgeons with multi-quadrant access, and management has highlighted a wide range of potential target procedures**

- *"I think there is still a lot of unmet need based on the current model of robotics. It has enabled minimally invasive surgery to be done where penetration has been low—prostatectomy, hysterectomy. We believe that it can enable difficult surgeries, cancer surgeries for example. But in the general surgery space will it replace base laparoscopic surgery in cholecystectomy of appendectomy? I don't think the cost will justify it, quite frankly." – M. del Prado 5/15/14*
- *"The unique workflow, advanced imaging, data analytics, [and] expanded reach to all four quadrants of the body along with an advanced instrumentation has the potential to advance robotic minimally invasive surgery with great benefit for patients." – M. Fitchet 5/18/16*
- *"We are creating a platform with the potential we can give every patient access to the outcomes of the best surgeon. Our focus will be to help drive complex surgical oncology procedures to minimally invasive approaches and to help improve and standardize the outcomes in challenging procedures, such as thoracic lobectomy, gastrectomy and low anterior resection." – M. Fitchet 5/18/16*
- *"I think the sweet spot for really transforming surgery is in areas where it's deep, it's confined, it's inaccessible like the thoracic cavity, like low anterior resection. These are two areas where the penetration of minimally invasive surgery has not been as good as the other areas. So, this is where we believe that with the better surgical platform robotics capabilities that we will be able to penetrate." – M. del Prado 5/18/16*
- *"Our system is being designed to provide multi-quadrant access to enable broader range of surgical procedures beyond the prostate surgery to colon, gastric, thoracic surgeries." – P. Shen 5/16/18*
- *"Importantly, are we able to address the unmet needs that continue to persist in the current robotic system? Firstly, reach and access, very important, multi-quadrant reach, being able to have the capability of reaching every part of the anatomy. We're going to deliver that." – M. del Prado 5/16/18*
- *"We recently successfully completed a series of end-to-end procedures, engaging a group of global KOLs across a subset of target specialties, including general and with hernia, colorectal and bariatrics, in gynecologic, and thoracic surgery." – P. Stoffels 7/17/19*

Source: JNJ 2014 Investor Day, JNJ 2016 Investor Day, JNJ 2018 Investor Day, 2018 Citi Healthcare Conference, JNJ 2Q19 Earnings Call

AURIS ACQUISITION

In January 2019, Verb CEO Scott Huennekens left the company. Less than two months later, JNJ announced the acquisition of Auris Health for $3.4B (with additional milestone-based payments up to $2.35B) on February 13, 2019 (see our initial reaction here). The $3.4B upfront payment is largely about Auris's Monarch lung biopsy platform, but much of the contingent payment is based on milestones related to a pipeline of products beyond Monarch. Specifically, Auris has several patents related to the use of robotics in general surgery – see the 294 patent, the 371 patent, and Exhibit 16.

EXHIBIT 16: **Image of "Surgical system with configurable rail-mounted mechanical arms" from Auris patent**

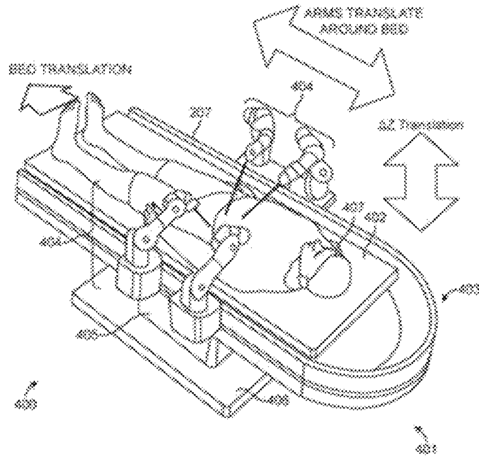


FIG. 4

Source: US Patent Office; US 2016/0296294

On JNJ's 1Q19 earnings call, management seemed to confirm the notion Auris IP could potentially be leveraged by either Verb or Orthotaxy at some point down the road. In our view, the Auris acquisition highlights management's desire to have a presence in robotics as soon as possible (and, potentially, management's dissatisfaction with the rate of progress at Verb under Mr. Huennekens). We also see the Auris acquisition as further validation that J&J management views surgical robotics as a foundational long-term growth driver.

Ultimately, Auris is expected to contribute to JNJ's broader digital surgery strategy alongside Verb, Orthotaxy, and several enabling technologies. In our discussions with the company, JNJ management has talked about Auris as separate, sitting alongside ongoing work at Verb and Orthotaxy. While management talks about their intention to "leave Auris alone, so they can do what they do best", they have also hinted at the idea that Auris technology could help improve the Verb platform in some meaningful ways. Longer-term, management envisions synergies across multiple robotics platforms, with additional synergies provided by some of the enabling technologies in which J&J has invested (e.g., Health Partner, C-SATS, SPI, etc.)

EXHIBIT 17: **Auris is expected to contribute to JNJ's broader digital surgery strategy alongside Verb, Orthotaxy, and several enabling technologies**

- *"We're very pleased to welcome Auris to the J&J family. Just spent some time with them last week at close and to really welcome Dr. Fred Moll, who many of you know is a true pioneer in the field of robotics. And we view the acquisition of Auris as highly complementary to our Verb program as well as our Orthopedics program and Orthotaxy...We plan to take advantage of the world-class robotics expertise, advanced instrumentation, our partnership with Verily of creating a connected experience and then clearly, our very robust global infrastructure to have a very competitive value proposition in the field of digital surgery." – A. McEvoy 4/16/19*
- *"We view the Auris acquisition as highly complementary to our Verb program. I was at Verb just last week, and I'm very pleased with how they're knocking down risk every day. They have completed all preclinical, procedural developments for several procedures. They've engaged with hundreds of surgeons. They're engaging right now with notified bodies on the regulatory pathways so I would say, stay tuned. We're going to take the best insight from Dr. Fred Moll and really have him and assess both of these programs and make sure that we have a highly differentiated value proposition at launch." – A. McEvoy 4/16/19*

Source: JNJ 1Q19 Earnings Call, JNJ 2Q19 Earnings Call

WHAT WE'RE HEARING FROM KEY OPINION LEADERS

Our ongoing discussions with key opinion leaders continue to validate the notion that customers are eager for competition in surgical robotics (Exhibit 18). Generally, surgeons and hospitals agree that competition is good for medical device markets. It keeps market participants honest, helps customers hold them accountable, stimulates innovation, and can lead to more favorable pricing.

In our experience, some surgeons are particularly receptive to competitive pitches. For all the surgeons who love Intuitive's technology and testify that the da Vinci has changed their lives for the better, there are others who feel snubbed by Intuitive. Perhaps they have sought speaking engagements that were never granted, or their custom instrument requests were ignored. The TransEnterix case is interesting. Buyers of the TransEnterix robots were eager to get out from "under the thumb" of Intuitive. But when they realized the technology was inferior, they quickly abandoned it for the devil they knew.

EXHIBIT 18: **Surgeons and hospitals are thirsty for competition... but that doesn't necessarily mean that new entrants will be successful**

- *"We were excited to buy a TransEnterix robot a couple years ago after suffering under the Intuitive monopoly for many years. We were excited to see a competitor, and the system looked promising. It has some nice features like the eye-catching camera. But it does not stack up to da Vinci – not even close. It's worse than lap, and now it's in storage."*

Source: Bernstein expert interviews

While surgeons and hospitals are excited by the prospect of competitive entry by MDT and JNJ, competition will need to be compelling in order to make a real difference. Surgeons do not like to change if they can avoid it, and they have invested a lot of effort in building skills on da Vinci.

Based on our recent discussions with KOLs, feedback regarding JNJ's general surgery robotic has been generally quite positive. Most experts believe that JNJ's robotic is superior to Medtronic's, and some believe that it could become a viable competitor to da Vinci in the long-run. In fact, several KOLs have gone so far as to call JNJ's robot a "game-changer". Unsurprisingly, it is JNJ's vision for "digital surgery"—of which robotics is just one component—that has key stakeholders most excited. However, there are also some aspects of the robot itself that surgeons find particularly compelling—most notably the heads-up, glasses-free, 3-D display screen.

EXHIBIT 19: **Experts are generally impressed by JNJ's robotics platform, and most believe that JNJ's entry will be market expanding**

- *"JNJ's prototype is highly sophisticated. The company has all the requisite skills and technology. I think it's going to be a major game changer."*
- *"JNJ's and Medtronic's entry will be market expanding. I expect we'll see an explosion of new procedures as the new systems roll out."*

Source: Bernstein expert interviews

EXHIBIT 20: **Most experts agree that JNJ's long-term value proposition in robotics is tied to management's larger plan to digitize surgery**

- *"What's going to be particularly intriguing is the AI and machine learning aspect [of JNJ's robotic platform]. Eventually, the robot will be able to recognize the anatomy and think like a surgeon. It will even be able to learn the procedure and perform certain steps automatically—with better outcomes than a surgeon. It's absolutely realistic to expect this to be the next big step in robotics."*

Source: Bernstein expert interviews

Below, we share a sampling of recent commentary we have heard on JNJ's tech and strategy in robotic surgery.

TECHNOLOGY: HARDWARE

To reiterate, experts are particularly excited about JNJ's vision of a fully integrated "digital surgery" ecosystem. Importantly, however, most surgeons who have already used JNJ's robot are also impressed by the robot itself. Echoing our discussions with

experts about MDT's surgical robot, JNJ's emphasis on differentiated end effectors, visualization, and arm architecture all emerged as important themes (see Exhibit 21).

EXHIBIT 21: **JNJ/Verb's robot scores high marks with KOLs, particularly for 1.) its differentiated 3-D display screen, and 2.) it's smooth and precise controls (which appear to be superior to MDT's robot and on par with da Vinci's)**

Instruments

- *"End effectors are a common element of JNJ's and MDT's value proposition. Both companies will use their robot as a platform to push their instruments."*
- *"Instruments are more of a core competency for JNJ than for ISRG. The da Vinci instrument portfolio is less than ideal. They have the old Harmonic shears, only one vessel sealer, limited advanced energy options, etc. The lack of advanced instrumentation has limited ISRG's penetration of more complex procedures."*
- *"Having wristed instruments is very important for a soft tissue robot. And JNJ is planning to develop wristed instruments for the robot. But developing adequate quality of the movement is quite challenging. Da Vinci has very precise, smooth, fine movements. It's totally exact. If you move just 0.5mm with your hands, the robot will move the same amount. The level of precision with JNJ's robot is very impressive. The movements with Medtronic's robot aren't as smooth."*

Visualization

- *"JNJ's robot has a fantastic curved display screen, which provides a totally 3-D impression."*
- *"The heads up display means the surgeons can still look around the OR and communicate with their team. It's a really fantastic solution."*
- *"The Verb screen looks great. I've never seen this display technology before. Every pixel on the screen moves with your eyes. There is a small camera targeting your eyes, and pixels on screen change their position as you move. This enables continuous 3-D vision without glasses in an open console."*

Robotic Arms

- *"The robotic arms are very small, similar to the CMR robot and slimmer than da Vinci's arms —which allows the staff to easily access the patient and to communicate with each other in the OR."*
- *"In terms of patient access, JNJ's robot is comparable to da Vinci. Medtronic's robot has inferior accessibility, but it's still manageable."*
- *"The robotic arms are integrated into the table—they come out from under the table. It's an interesting solution, but may negatively impact the ability to reduce the time between patients. The arm architecture could be particularly problematic for European surgeons who have relatively fewer hours in the OR. But Verb is a well-managed company with a lot of resources. They'll come up with a solution."*

Source: Bernstein expert interviews

While ISRG end effectors have improved considerably in recent years, da Vinci users still point to the company's instruments as a potential area of vulnerability. For the last two decades, ISRG's monopoly position has generally insulated the company from this relative weakness. In our view, it makes perfect sense for MDT and JNJ to draw the battle lines around the quality of their end effectors (an area where they have an advantage over ISRG) rather than around the quality of their robot per se (an area where ISRG has considerably more experience and know-how).

The logic of this end effector strategy notwithstanding, it will be far easier said than done for both MDT and JNJ. Retrofitting an instrument for robotic compatibility is considerably more involved than simply taking the end effector from a laparoscopic instrument and sticking it onto a robotic arm. In reality, instruments will need to be reengineered to be made fully wristed, since the vast majority of laparoscopic instruments are straight (i.e., not wristed).

Most notably, surgeons are very intrigued by JNJ's differentiated display screen. Like MDT and ISRG, JNJ's robot will have a 3-D display screen. However, unlike MDT, JNJ's 3-D technology does not require the use of 3-D glasses. And, unlike da Vinci, JNJ has designed a heads-up display that is less stressful on surgeons' eyes while also better enabling communication among team members in the OR. JNJ has employed a curved screen and eye-tracking technology to make this combination of features possible, and early feedback has been very positive.

With respect to the robotic arms, experts indicated that they will be attached to the bed and will "come out from under the bed." This is consistent with management commentary regarding plans to reduce the system's footprint relative to da Vinci. However, some European users expressed concern that the bed-mounted arm design could negatively impact their ability to optimize operating room utilization given pre- and post-procedure workflow differences between the U.S. and Europe.

In terms of the size, JNJ's robotic arms are substantially smaller than MDT's robot. Surgeons seem to appreciate the improved patient access that this design choice affords vs. MDT's robot, which is designed with each robotic arm mounted to its own standalone column/cart.

TECHNOLOGY: DIGITAL SURGERY

JNJ management aims to offer a compelling value proposition in robotics as part of a broader "digital surgery" platform—which refers to the integration of surgical robotics, supporting software, and a smart/interconnected operating room. Based on our recent expert interviews, we believe most surgeons are both excited and optimistic about JNJ's potential for success on this front. We are similarly intrigued by JNJ's strategy around digital surgery, and we agree that AI and informatics have the potential to improve patient outcomes beyond what robotics alone can achieve.

That said, we believe it is also important to acknowledge that JNJ will not be able to offer this capability immediately; JNJ will not be a meaningful competitive advantage until the company is able to collect (and analyze) a critical mass of relevant data. In effect, JNJ will be asking customers to sign up for a robot so that the process of data generation can begin in earnest.

EXHIBIT 22: **Experts are intrigued by JNJ's vision of "digital surgery" and are encouraged by the Alphabet partnership, but they acknowledge that Intuitive is also investing in this area**

- *"Intuitive has a very solid and robust working system [in da Vinci]. It's like a Mercedes: extremely reliable, extremely low malfunction rate, extremely intuitive and easy to use. In terms of engineering, da Vinci is really good. But like a Mercedes, it is hardware engineering. There is room for the next step in surgery, which is the data part of it. There hasn't been a lot of development pressure on Intuitive historically, and da Vinci doesn't help surgeons make decisions as well as it could. The market needs to move from Mercedes to Tesla. There is a big opportunity for a competitor to enter the robotic surgery market with a value proposition built around digital technologies."*
- *"JNJ has a very strong partner in Google. Google has experience generating data, experience with machine learning, and experience with AI. I suspect they'll start with relatively low hanging fruit. It can be simple stuff such as instrument utilization, feedback loops on relatively easy parameters—which instruments did you use? how long did it take?—metrics to increase OR efficiency, etc. Eventually, JNJ can go a long way in providing surgeons with data to improve their decision-making."*
- *"Both JNJ and Intuitive are headed in very similar directions with their digital strategies. I'm convinced it will be a game changer in surgery. Connecting procedural data to clinical outcomes is the big vision in the end. Right now, we are capturing no data, and the surgeons just writes up a short and biased report. We need to make the computer understand what's going on during surgery. Ethicon started that conversation, but Intuitive was smart and quickly jumped on. The real question is: 'Who has the best resources to execute on this vision? And who will be able to plug their robot into an entire software system?' That company will be the long-term winner."*

Source: Bernstein expert interviews

EXHIBIT 23: **One theory is that JNJ's video feed technology will enable surgeons to compare intraoperative data across open, laparoscopic, *and* robotic procedures**

- *"The digitization strategy is very much a core design element. JNJ recognizes that this isn't about robotics vs. laparoscopy vs. open [surgery]. Digital surgery is an umbrella for everything. That gives JNJ an advantage over ISRG in the digital game. The video feed is the common denominator connecting [the different modalities]. If you look at the video feed, that opens up minimally invasive and open surgery for digital analysis."*

Source: Bernstein expert interviews

Some experts we spoke to believe that JNJ may leverage its video technology – paired with AI-enabled technology akin to facial recognition capability – to generate intraoperative data (e.g., instrument tracking, instrument-tissue interaction, etc.) across robotic, laparoscopic, *and* open procedures (see Exhibit 23). This data would then be cross-referenced against patient outcomes to inform best practices, increase procedural replicability, and potentially offer intra-operative decision-making support.

With its Digital Surgery strategy, JNJ is betting that it can (1) find ways to collect meaningful data across robotic, lap and open procedures and (2) develop applications for those data that are compelling for hospitals and surgeons. Success here could change the basis for competition in the market and create an advantage over ISRG by leveraging JNJ's leadership in lap and open procedure volumes.

We expect JNJ's digital surgery platform to be rollout out in phases, starting with relatively low-hanging fruit (e.g., data collection on instrument utilization, operating time, clinical outcomes, etc.) and building towards more advanced capabilities. Eventually, some experts envision a world in which certain steps of a procedure are automated—though they acknowledge that this is still many years away from becoming a reality.

EXHIBIT 24: **JNJ's "digital surgery" platform will likely start by collecting relatively simple data, but the end-game could include intra-operative decision support and even autonomous completion of certain steps**

- *"The ultimate goal [with digital surgery] is to make surgery safer. Take the evolution of commercial aviation as an example. If you had asked a pilot 40 years ago whether autopilot technology was possible, they would have all said no. They would have pointed to the number of variables that must be accounted for in support of their answer. Many surgeons might say the same thing now. But surgery can be standardized and made safer in a similar way. Achieving partial automation will be the goal, but it's going to take a long time to get there."*

Source: Bernstein expert interviews

ECONOMICS & PROCEDURE FOCUS

While it's clear that JNJ intends to make per procedure economics an important part of its value proposition in robotic surgery, management has been significantly less clear about the details of the economic model than MDT. However, JNJ management has talked enough about price over the years to give key opinion leaders confidence that the4 company's robot will be less expensive than da Vinci. Experts also expect JNJ to compete with ISRG on instrument affordability. If JNJ is able to significantly extend the useful lives of its robotic instruments (i.e., if JNJ successfully disrupts ISRG's razor-razorblade model), then per-procedure cost could come down meaningfully.

EXHIBIT 25: **Experts believe JNJ's economic strategy will combine a less expensive robot with instruments that have longer useful lives than da Vinci's**

- *"JNJ's robot will be cheaper than da Vinci."*
- *"Intuitive's 10-use instrument life is unnecessary and arbitrary. And it presents a real opportunity [for JNJ and MDT]."*

Source: Bernstein expert interviews

JNJ is playing the long game in robotic surgery, and experts do not expect management to prioritize maximizing systems revenue in the near-term. Like MDT, JNJ is expected to leverage its surgical robot to lock-in end effector volume—rather than recovering as much as possible on the capital sale. Longer-term, experts believe that JNJ's real priority is collecting surgical information, which is consistent with management commentary around revolutionizing digital surgery.

EXHIBIT 26: **Experts believe that JNJ is more focused on locking in end effector volume and collecting surgical information, rather than maximizing revenue from systems sales**

- *"End effectors are a common element of JNJ's and MDT's value proposition. Both companies will use their robot as a platform to push their instruments."*
- *"JNJ isn't so keen on selling robots. They are much more interested in collecting surgical information and data. It's not so much about selling the product, but more about how to collect information."*

Source: Bernstein expert interviews

From a procedure standpoint, experts seemed to suggest JNJ would focus on more complex procedures initially. For example, one KOL called out "complex GI procedures: rectum, pancreas, esophagus."

TIMELINE

After the Auris acquisition in 1Q19, some investors worried that JNJ's launch date for the surgical robot might be pushed back. So far, JNJ has not moved off its 2020 commitment, and many of the experts we've spoken with believe the program remains on-track. Per our discussions with management and as noted above, we believe limited launch in early 2021 appears more likely at this point.

EXHIBIT 27: **Experts believe that JNJ will adhere to its 2020 launch guidance, and do not believe the Auris acquisition will result in a delay**

- *"I've already seen enough to have confidence [in the launch timeline]."*
- *"JNJ seems to be on a good path, and they're not moving the launch date. There is no indication that there is any problem with the hardware [that could delay the launch timeline]."*
- *"There is no indication that the Auris acquisition will delay JNJ's commercial timeline."*
- *"With each new robot [that comes to market], surgeons will have to reinvent each procedure. Most people—even [those] in the industry—don't understand this and often and underestimate it. It will take a long time for both JNJ and MDT [to develop these procedures]. As soon as surgeons find a way to use the robots appropriately, we will be able to use them in a similar way to da Vinci for certain procedures. But only time will tell whether we will be able to perform complex procedures with these robots."*

Source: Bernstein expert interviews

SUMMARY VIEW FROM EXPERTS

In short, most experts agree that JNJ's robot is superior to Medtronic's, and some believe it approaches equal footing with Intuitive's da Vinci platform. The surgeons we interviewed are particularly intrigued by JNJ's "digital surgery" strategy, but they are also encouraged by the robot's design from a hardware perspective.

Specifically, JNJ's unique visualization solution (glasses-free, heads-up, 3-D display) could be an important source of differentiation during the initial phase of the robot's rollout—since the data required to execute on the "digital surgery" strategy will take a nontrivial amount of time to collect (to say nothing of the time needed to analyze the data and then integrate it into a continuous feedback loop to improve surgeon performance).

Despite the optimism around JNJ's robotics program, experts generally agree that Intuitive will continue to be a major player in the long-run. This outcome is not mutually exclusive with a successful entry by JNJ. There are room for multiple players in this market, and most surgeons believe that competitive entry will be market expanding.

EXHIBIT 28: **Experts generally agree that Intuitive will continue to be a major player in the long-run, and they expect JNJ's entry to be market expanding**

- *"Intuitive is being clever about placing as many systems as they can ahead of the competition, like the shift towards an operating lease model. Being the second system on the market [and not the third] is therefore important."*
- *"Intuitive is unlikely to deviate from their platform too much just to offer a cheaper version of da Vinci. A full redesign is doubtful. It's more likely that management invests the incremental dollars in data analytics capabilities."*
- *"We could see Intuitive partner with someone on data analytics, such as Apple or IBM Watson. Data analytics capabilities are hard to develop from the ground up, and Intuitive can't expect to compete with Google without outside help."*
- *"Intuitive's long-term market share is unclear, but there's no doubt they will continue to be a major player in this market. [Share shift] is going to be highly dependent on how good the new systems are. Substantial market segmentation is the most likely long-term outcome."*
- *"As the market grows, a lot of hospitals will probably have multiple robots. But it's unclear if surgeons will be able and/or willing to jump from one to another. Will this be like driving a car, where you can easily switch between different models, or more like flying a plane, where a pilot is licensed for one specific model? In the end, the offerings will likely be fairly similar, and it will largely come down to personal preference. Hospitals will probably end up with two systems, one for the central OR, and one for the outpatient setting."*

Source: Bernstein expert interviews

KEY TAKEAWAYS

In our recently published review of MDT's soft-tissue surgical robot (see link), we offered six key takeaways based on our review of management commentary and interviews with key opinion leaders, and we add three additional points here re: JNJ's robot. First, we recap takeaways we noted in our MDT note:

(1) Customers are eager to see competition in surgical robotics...

Many surgeons *love* da Vinci and believe the technology has improved their lives by offering a better way to do their jobs. Others resent the company for perceived monopolistic behavior over the years. Where surgeons agree is in the view that competition will be a good thing for the surgical robotics market. Hospital administrators and CFOs are even more eager to explore alternatives in hopes of gaining some negotiating leverage.

(2) ...but to make a difference, the competition needs to be compelling

Surgeons do not like change. If a surgical approach is creating good patient outcomes, it is very difficult to convince a surgeon to consider a new approach. Intuitive has spent 20 years working hard to drive adoption of robotic surgery. Over that time, the company has placed over 5,300 robots and trained over 44,000 surgeons on the da Vinci. And surgeons have invested significant time and energy to learn procedures and build skills on the platform, with over 6 million procedures performed to date and over 14,000 peer-reviewed papers published.

As much as surgeons may welcome an alternative to Intuitive, inertia will be an important barrier to switching. Given the time and energy surgeons have invested in building skills on da Vinci, many will resist considering a new, untested platform. And as much as administrators would love to drive costs down, they will struggle to convert ISRG programs to MDT programs without surgeon support. The new competition will have to be really compelling to make a difference. They will need to earn their right to compete.

(3) Competition will fundamentally change the surgical robotics market over time

Intuitive has held a monopoly position for the last two decades. MDT and JNJ are pouring resources into their programs. It's clear that competition is coming. Even if we are not bowled over by what we have heard about the MDT robot so far, we do believe MDT will find success – if not with all customers, certainly with some – and if not with its first-generation robot, certainly with

some iteration. When competition begins to break through, it will have an impact on Intuitive. Capital sales cycles may lengthen. Procedure growth rates may modulate in certain segments. There will be pressure on pricing.

(4) We believe MDT entry will be market-expanding

In our view, the bull case on ISRG is not dependent on maintaining the company's historic monopoly position. There is room for multiple participants in this market given that fewer than 5% of eligible procedures are currently penetrated by robotic surgery, coupled with the clear value proposition of the modality relative to both open surgery and other MIS techniques. We see this as an attractive growth market for many years to come.

Medtronic's robot seems likely to increase the range of procedures that can move from open and lap approaches to robotic approaches. As medtech markets mature, often we see competitors carve out certain niches, and we believe that's a likely outcome here.

(5) Don't forget, ISRG is not standing still

It's easy to get lost pondering all the possible ways in which Medtronic could have impact on Intuitive's business. But it's also important to remember that Intuitive has been in the war room for years contemplating scenarios and formulating responses.

Shifting capital placements to operating leases and usage-based deals, for example, has helped the company prepare for Medtronic's per-procedure pricing model. The SP launch helps Intuitive extend the distinctiveness of its 4th generation platform, moving the goalposts for MDT and JNJ. Intuitive has experimented with multiple system designs over the years – some speculate the company may have a slimmed-down, less expensive robot ready to fight Medtronic for lower-priced procedures and ASC business. Efforts in augmented reality and machine learning have the potential to strengthen the value of ISRG's installed base. And the company's clean balance sheet gives ISRG some flexibility to act quickly on various competitive responses.

(6) Whatever happens, it's going to take multiple years to materialize

Even if MDT's unveiling of its prototype in September makes legitimate competition to ISRG seem imminent, we are still multiple years away from full-fledged competition on a meaningful scale. Management has guided to commencement of the initial phase of the rollout to begin in FY20 (i.e., before 4/30/20), and most investors are expecting sometime in the first half of CY20. That MDT has opted to launch exclusively in OUS markets at this stage seemingly indicates that the company may have work to do to generate the quality and volume of clinical data needed for FDA approval.

We expect Medtronic to execute a controlled launch in 1H 2020 in select markets outside the U.S. to help validate the technology and begin to build clinical evidence. We anticipate a controlled U.S. launch will be staged at least 12-18 months post OUS launch. Given the time required to build out procedures, train surgeons, etc., we do not expect to see material revenue contribution for MDT until FY23 (2H CY22).

Having now spent some more time researching JNJ's general surgery robot, we add the following three additional takeaways:

(7) Experts are generally more excited by JNJ's robotic surgery platform than by MDT's

Experts generally believe that JNJ's robot is superior to Medtronic's from a tech perspective – at least, superior to the "v1" robot Medtronic is likely to have at launch – and some believe that it could eventually become a viable competitor to da Vinci. Multiple KOLs have gone so far as to call JNJ's robot a "game-changer".

While JNJ's vision of "digital surgery" is what excited surgeons most in the long-run, JNJ also has a differentiated design with respect to the robot itself. Most notably, surgeons are very intrigued by JNJ's differentiated display screen. Like MDT and ISRG, JNJ's robot will have a 3-D display screen. However, unlike MDT, JNJ's 3-D technology does not require the use of 3-D glasses. And, unlike da Vinci, JNJ has designed a heads-up display that is less stressful on surgeons' eyes while also better enabling communication among team members in the OR. JNJ has employed a curved screen and eye-tracking technology make this combination of features possible, and early feedback has been very positive.

(8) Being second to market might not be as advantageous as MDT hopes

We believe that there are some particularly loyal Medtronic/Covidien users who will want to test the MDT robot as soon as possible. These surgeons won't feel the need to wait around for JNJ's launch. But there are many users who are either more loyal

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to JNJ Ethicon than to Covidien, or who are heavy users of both surgical tools vendors. For these surgeons, it might be worth it to wait and see just how exciting JNJ's platform is before making a decision to purchase a JNJ robot, a MDT robot, both, or neither.

MDT has made the strategic decision to incorporate a substantial number of off-the-shelf components into the robot's design with the intent to get market before JNJ. However, on the whole experts seem to be more excited about JNJ's robot, and we would expect a large portion of users to wait to see what both MDT and JNJ has before committing to one platform or the other.

(9) "Digital surgery" is exciting, and JNJ may have some differentiated capabilities—but it's not clear ISRG is behind

Commentary from JNJ management makes it clear that the company's value proposition in robotics will be part of a broader "digital surgery" platform. JNJ plans to "dramatically revolutionize surgery" by leveraging Alphabet's expertise in big data and AI to make surgery more predictable and more replicable—and ultimately to improve patient outcomes. We are intrigued by JNJ's vision of digital surgery, and strongly believe that incorporating AI and informatics at the pre- and post-op stage has the potential to improve patient outcomes beyond what robotics alone can achieve.

Our KOL interviews suggest that JNJ is developing some interesting capabilities on the digital front, but it is not clear that JNJ will have an advantage over Intuitive. JNJ does not yet have the data it needs to execute on its vision, and its digital capabilities will be quite limited until a critical mass of data has been collected. In effect, JNJ will be asking customers to sign up for a robot so that the process of data generation can begin in earnest. However, if JNJ management successfully finds a way to leverage the company's scale advantage over ISRG, that could potentially change the whole basis of competition in this market.

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APPENDIX - FINANCIAL FORECASTS

EXHIBIT 29: **ISRG Financial Statements**

Adjusted Income Statement	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Instruments & Accessories	1,396	1,637	1,962	2,358	2,790	3,264	3,787	4,393
Systems	800	928	1,127	1,306	1,509	1,720	1,909	2,119
Services	511	573	635	721	810	907	1,015	1,137
Sales	**2,707**	**3,138**	**3,724**	**4,385**	**5,108**	**5,891**	**6,711**	**7,649**
COGS (adj)	768	881	1,062	1,274	1,535	1,823	2,118	2,452
Gross profit (adj)	**1,938**	**2,257**	**2,663**	**3,111**	**3,573**	**4,067**	**4,594**	**5,197**
SG&A (adj)	594	682	807	991	1,129	1,279	1,450	1,653
R&D (adj)	186	259	319	429	459	482	529	588
Operating income (adj)	**1,158**	**1,316**	**1,537**	**1,691**	**1,985**	**2,307**	**2,614**	**2,957**
Interest and other income, net	36	42	80	131	160	236	298	361
Earnings before taxes	1,194	1,358	1,618	1,822	2,145	2,543	2,912	3,318
Taxes (adj)	313	301	317	355	403	470	524	597
Net income (adj)	**881**	**1,057**	**1,305**	**1,464**	**1,742**	**2,072**	**2,388**	**2,721**
Diluted EPS (adj)	**$7.47**	**$9.09**	**$10.99**	**$12.23**	**$14.39**	**$16.99**	**$19.50**	**$22.19**
Avg Diluted Shares (M)	117.9	116.3	118.8	119.8	121.0	121.9	122.5	122.6
EBITDA (adj)	**1,232**	**1,402**	**1,646**	**1,840**	**2,153**	**2,495**	**2,830**	**3,203**
Growth Rates (YoY)	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**
Reported Growth								
Instruments & Accessories	16.5%	17.3%	19.9%	20.2%	18.3%	17.0%	16.0%	16.0%
Systems	10.8%	16.1%	21.4%	15.9%	15.5%	14.0%	11.0%	11.0%
Services	9.9%	12.2%	10.9%	13.5%	12.3%	12.0%	12.0%	12.0%
Total	**13.5%**	**16.0%**	**18.7%**	**17.7%**	**16.5%**	**15.3%**	**13.9%**	**14.0%**
EBITDA	21.9%	13.8%	17.4%	11.8%	17.0%	15.9%	13.5%	13.2%
EBIT (adj)	22.4%	13.6%	16.8%	10.0%	17.4%	16.2%	13.3%	13.1%
EPS (adj)	16.3%	21.6%	20.9%	11.3%	17.7%	18.1%	14.7%	13.8%
Key ratios	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**
Gross margin	71.6%	71.9%	71.5%	70.9%	69.9%	69.0%	68.4%	67.9%
SG&A	22.0%	21.7%	21.7%	22.6%	22.1%	21.7%	21.6%	21.6%
R&D	6.9%	8.3%	8.6%	9.8%	9.0%	8.2%	7.9%	7.7%
EBITDA	45.5%	44.7%	44.2%	42.0%	42.1%	42.3%	42.2%	41.9%
Operating margin (adj)	**42.8%**	**41.9%**	**41.3%**	**38.6%**	**38.9%**	**39.2%**	**39.0%**	**38.7%**
Incremental adj. operating margin	65.9%	36.6%	37.8%	23.2%	40.7%	41.1%	37.5%	36.5%
Tax rate, % EBT	26.2%	22.2%	19.6%	19.5%	18.8%	18.5%	18.0%	18.0%
Net income (adj)	32.6%	33.7%	35.0%	33.4%	34.1%	35.2%	35.6%	35.6%
Cash flow	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**
FCF	989	953	982	1,260	1,776	2,206	2,399	2,740
FCF, % sales	37%	30%	26%	29%	35%	37%	36%	36%
FCF:Adj. NI	112%	90%	75%	86%	102%	106%	100%	101%
FCF/share	$8.39	$8.20	$8.27	$10.52	$14.68	$18.09	$19.58	$22.35
Cash from Operations	1,043	1,144	1,170	1,625	2,079	2,552	2,812	3,198
Cash from Investing	(1,279)	379	(1,050)	(627)	(303)	(346)	(413)	(458)
Cash from Financing	559	(1,913)	126	(107)	(289)	(561)	(910)	(1,371)
Change in cash	**322**	**(391)**	**246**	**892**	**1,487**	**1,645**	**1,489**	**1,369**
Capex	(54)	(191)	(187)	(292)	(303)	(346)	(413)	(458)
Buy backs	(43)	(2,274)	0	(200)	(493)	(745)	(1,075)	(1,520)
Balance Sheet	**2016**	**2017**	**2018**	**2019E**	**2020E**	**2021E**	**2022E**	**2023E**
Total Assets	6,487	5,758	7,847	9,559	11,395	13,360	15,352	17,277
Current Assets	3,250	2,811	4,333	5,094	6,815	8,641	10,454	12,188
LT Assets	3,237	2,947	3,514	4,465	4,580	4,719	4,898	5,089
Book Value of Equity	5,778	4,727	6,688	8,330	10,144	12,079	14,044	15,942
Total Liabilities	709	1,031	1,159	1,229	1,251	1,281	1,307	1,335
Cash	1,037	648	858	1,712	3,199	4,844	6,333	7,701
Total Debt	0	0	0	0	0	0	0	0
Net Debt (cash)	(1,037)	(648)	(858)	(1,712)	(3,199)	(4,844)	(6,333)	(7,701)
Net Debt (cash): EBITDA	-0.8x	-0.5x	-0.5x	-0.9x	-1.5x	-1.9x	-2.2x	-2.4x
Total Debt (cash): EBITDA	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x
NOPAT (All in)	855	1,024	1,237	1,361	1,612	1,880	2,144	2,425
ROIC (All in)	15.9%	17.9%	19.5%	16.4%	15.8%	15.6%	15.3%	15.2%
ROIC (Tangible)	16.9%	19.0%	21.0%	17.6%	16.8%	16.4%	15.9%	15.7%

Adjusted Income Statement	1Q 18	2Q 18	3Q 18	4Q 18	1Q 19	2Q 19	3Q 19E	4Q 19E
Instruments & Accessories	460	476	486	539	552	579	581	646
Systems	235	277	275	341	248	344	315	400
Services	153	156	160	167	174	177	181	189
Sales	**848**	**909**	**921**	**1,047**	**974**	**1,099**	**1,078**	**1,235**
COGS (adj)	241	263	263	295	281	315	316	362
Gross profit (adj)	**607**	**646**	**658**	**751**	**693**	**784**	**762**	**873**
SG&A (adj)	188	185	187	247	231	233	232	296
R&D (adj)	73	73	81	92	100	95	109	125
Operating income (adj)	**346**	**389**	**391**	**412**	**362**	**455**	**421**	**453**
Interest and other income, net	13	18	22	27	28	33	32	40
Earnings before taxes	360	407	413	439	389	488	453	492
Taxes (adj)	72	80	76	88	77	98	84	96
Net income (adj)	**288**	**327**	**337**	**353**	**312**	**388**	**369**	**396**
Diluted EPS (adj)	**$2.44**	**$2.76**	**$2.83**	**$2.96**	**$2.61**	**$3.25**	**$3.08**	**$3.29**
Avg Diluted Shares (M)	118.0	118.5	119.2	119.2	119.6	119.3	119.8	120.3
EBITDA (adj)	**370**	**415**	**418**	**444**	**393**	**492**	**460**	**495**
Growth Rates (YoY)	**1Q 18**	**2Q 18**	**3Q 18**	**4Q 18**	**1Q 19**	**2Q 19**	**3Q 19E**	**4Q 19E**
Reported Growth								
Instruments & Accessories	20.9%	19.7%	21.2%	18.0%	20.0%	21.5%	19.5%	19.8%
Systems	45.8%	25.5%	4.8%	19.7%	5.5%	23.9%	14.8%	17.4%
Services	10.7%	11.4%	10.7%	10.8%	13.9%	13.4%	13.4%	13.4%
Total	**24.7%**	**19.8%**	**14.0%**	**17.3%**	**14.9%**	**20.9%**	**17.0%**	**18.0%**
EBITDA	29.9%	23.6%	12.6%	8.0%	6.2%	18.5%	10.3%	11.7%
EBIT (adj)	30.3%	23.4%	11.9%	6.7%	4.4%	17.1%	7.9%	9.9%
EPS (adj)	42.8%	38.4%	1.6%	14.1%	7.1%	17.6%	8.8%	11.1%
Key ratios	**1Q 18**	**2Q 18**	**3Q 18**	**4Q 18**	**1Q 19**	**2Q 19**	**3Q 19E**	**4Q 19E**
Gross margin	71.6%	71.1%	71.5%	71.8%	71.2%	71.3%	70.7%	70.7%
SG&A	22.2%	20.3%	20.3%	23.6%	23.7%	21.2%	21.5%	23.9%
R&D	8.6%	8.0%	8.8%	8.8%	10.3%	8.7%	10.1%	10.1%
EBITDA	43.7%	45.6%	45.3%	42.4%	40.4%	44.7%	42.7%	40.1%
Operating margin (adj)	**40.9%**	**42.7%**	**42.4%**	**39.4%**	**37.1%**	**41.4%**	**39.1%**	**36.7%**
Incremental adj. operating margin	47.9%	49.0%	36.7%	16.6%	12.0%	35.1%	19.6%	21.6%
Tax rate, % EBT	20.1%	19.7%	18.5%	20.0%	19.8%	20.0%	18.6%	19.5%
Net income (adj)	33.9%	36.0%	36.6%	33.8%	32.0%	35.3%	34.2%	32.1%
Cash flow	**1Q 18**	**2Q 18**	**3Q 18**	**4Q 18**	**1Q 19**	**2Q 19**	**3Q 19E**	**4Q 19E**
FCF	240	187	273	283	218	234	508	299
FCF, % sales	28%	21%	30%	27%	22%	21%	47%	24%
FCF:Adj. NI	84%	57%	81%	80%	70%	60%	138%	76%
FCF/share	$2.03	$1.58	$2.29	$2.37	$1.83	$1.96	$4.24	$2.49
Cash from Operations	280	232	320	338	333	316	558	345
Cash from Investing	54	(44)	(573)	(486)	(309)	(223)	(49)	(46)
Cash from Financing	(8)	43	58	34	(42)	(179)	57	57
Change in cash	**326**	**230**	**(195)**	**(115)**	**(18)**	**(85)**	**565**	**356**
Capex	(40)	(45)	(47)	(56)	(115)	(82)	(49)	(46)
Buy backs	0	0	0	0	0	(200)	0	0
Balance Sheet	**1Q 18**	**2Q 18**	**3Q 18**	**4Q 18**	**1Q 19**	**2Q 19**	**3Q 19E**	**4Q 19E**
Total Assets	6,426	6,850	7,319	7,847	8,235	8,532	9,007	9,559
Current Assets	3,382	3,986	4,253	4,333	4,025	4,072	4,542	5,094
LT Assets	3,045	2,864	3,066	3,514	4,210	4,460	4,465	4,465
Book Value of Equity	5,506	5,869	6,289	6,688	7,040	7,280	7,785	8,330
Total Liabilities	920	980	1,030	1,159	1,195	1,252	1,222	1,229
Cash	975	1,204	1,008	858	876	790	1,356	1,712
Total Debt								
Net Debt (cash)	(975)	(1,204)	(1,008)	(858)	(876)	(790)	(1,356)	(1,712)
Net Debt (cash): EBITDA	0.7x	0.7x	0.6x	0.5x	0.6x	0.4x	0.7x	0.9x
Total Debt (cash): EBITDA	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x
NOPAT (All in)	277	312	318	329	290	364	343	364
ROIC (All in)	19.3%	19.9%	19.1%	18.5%	15.3%	18.4%	17.4%	17.4%
ROIC (Tangible)								

Source: Company reports; Bernstein estimates & analysis

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EXHIBIT 30: **JNJ Financial Statements**

Adjusted Income	2017	2018	2019E	2020E	2021E	2022E	2023E	1Q 18	2Q 18	3Q 18	4Q 18	1Q 19	2Q 19	3Q 19E	4Q 19E
Consumer	13,602	13,853	13,958	14,383	14,848	15,320	15,808	3,398	3,504	3,415	3,536	3,318	3,544	3,463	3,634
MD&D	26,592	26,994	25,708	26,451	27,506	28,631	29,831	6,767	6,972	6,587	6,668	6,458	6,491	6,141	6,618
Pharma	36,256	40,734	42,005	44,879	47,496	48,064	49,498	9,844	10,354	10,346	10,190	10,244	10,529	10,497	10,735
Sales (adj)	**76,450**	**81,581**	**81,671**	**85,713**	**89,850**	**92,015**	**95,137**	**20,009**	**20,830**	**20,348**	**20,394**	**20,020**	**20,564**	**20,101**	**20,987**
COGS (adj)	21,729	22,521	22,991	23,963	24,941	25,451	26,220	5,416	5,768	5,481	5,856	5,462	5,784	5,656	6,089
Gross profit (adj)	**54,721**	**59,060**	**58,681**	**61,750**	**64,909**	**66,564**	**68,916**	**14,593**	**15,062**	**14,867**	**14,538**	**14,558**	**14,780**	**14,445**	**14,898**
SG&A (adj)	21,420	22,540	21,935	22,726	23,420	23,893	24,610	5,263	5,743	5,543	5,991	5,219	5,546	5,214	5,955
R&D (adj)	10,554	10,775	11,210	11,421	11,703	11,894	12,202	2,404	2,639	2,508	3,224	2,858	2,666	2,578	3,108
Operating income (adj)	**22,747**	**25,745**	**25,536**	**27,603**	**29,786**	**30,777**	**32,104**	**6,926**	**6,680**	**6,816**	**5,323**	**6,481**	**6,568**	**6,653**	**5,834**
Interest expense (adj)	549	394	50	264	178	195	186	145	127	68	54	3	-5	37	15
Other expense (income) (adj)	-2,015	-1,347	-2,751	-1,800	-1,400	-1,300	-1,200	-77	-461	-32	-777	-388	-2,043	-160	-160
Earnings before taxes (adj)	**24,212**	**26,698**	**28,237**	**29,139**	**31,008**	**31,881**	**33,118**	**6,858**	**7,014**	**6,780**	**6,046**	**6,866**	**8,616**	**6,776**	**5,979**
Taxes (adj)	4,172	4,383	5,084	4,808	5,116	5,260	5,464	1,223	1,296	1,190	674	1,206	1,664	1,287	927
Net income (adj)	**20,040**	**22,315**	**23,153**	**24,331**	**25,891**	**26,621**	**27,654**	**5,635**	**5,718**	**5,590**	**5,372**	**5,660**	**6,952**	**5,488**	**5,053**
Diluted EPS (adj)	**$7.30**	**$8.18**	**$8.62**	**$9.16**	**$9.79**	**$10.11**	**$10.55**	**$2.06**	**$2.10**	**$2.05**	**$1.97**	**$2.10**	**$2.58**	**$2.05**	**$1.89**
Avg Diluted Shares (M)	2,745.3	2,728.7	2,685.6	2,654.9	2,643.8	2,632.2	2,620.7	2,731.9	2,721.3	2,727.6	2,724.0	2,698.8	2,691.7	2,680.5	2,671.2
EBITDA	**25,426**	**28,317**	**28,435**	**31,566**	**34,673**	**36,564**	**38,637**	**7,557**	**7,313**	**7,462**	**5,985**	**7,112**	**7,217**	**7,370**	**6,736**

Growth Rates (YoY)	2017	2018	2019E	2020E	2021E	2022E	2023E	1Q 18	2Q 18	3Q 18	4Q 18	1Q 19	2Q 19	3Q 19E	4Q 19E
Organic															
Consumer	-0.5%	3.2%	1.7%	3.1%	3.2%	3.2%	3.2%	2.0%	0.9%	6.1%	3.8%	0.7%	2.3%	1.7%	2.2%
MD&D	1.5%	2.6%	3.1%	3.9%	4.0%	4.1%	4.2%	1.1%	2.9%	2.9%	3.3%	4.3%	3.2%	2.1%	2.8%
Pharma	4.2%	8.4%	5.1%	6.9%	5.8%	1.2%	3.0%	7.5%	11.0%	8.2%	7.2%	7.9%	4.4%	2.7%	5.6%
Total	**2.4%**	**5.5%**	**3.9%**	**5.3%**	**4.8%**	**2.4%**	**3.4%**	**4.3%**	**6.3%**	**6.1%**	**5.3%**	**5.5%**	**3.7%**	**2.3%**	**4.1%**
Currency	**0.4%**	**0.3%**	**-2.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**4.2%**	**1.9%**	**-1.9%**	**-2.3%**	**-3.9%**	**-2.9%**	**-1.0%**	**-0.2%**
M&A	**3.6%**	**0.9%**	**-1.8%**	**-0.3%**	**0.0%**	**0.0%**	**0.0%**	**4.1%**	**2.4%**	**-0.6%**	**-2.0%**	**-1.6%**	**-2.1%**	**-2.5%**	**-1.0%**
Reported Growth	**6.3%**	**6.7%**	**0.1%**	**4.9%**	**4.8%**	**2.4%**	**3.4%**	**12.6%**	**10.6%**	**3.6%**	**1.0%**	**0.1%**	**-1.3%**	**-1.2%**	**2.9%**
EBITDA	0.2%	11.4%	0.4%	11.0%	9.8%	5.5%	5.7%	16.1%	9.0%	9.4%	11.2%	-5.9%	-1.3%	-1.2%	12.6%
Operating Income (adj)	-0.7%	13.2%	-0.8%	8.1%	7.9%	3.3%	4.3%	16.9%	10.6%	10.2%	15.9%	-6.4%	-1.7%	-2.4%	9.6%
EPS (adj)	8.5%	12.0%	5.4%	6.3%	6.9%	3.3%	4.3%	12.8%	14.5%	8.0%	13.1%	1.7%	22.9%	-0.1%	-4.1%

Key ratios	2017	2018	2019E	2020E	2021E	2022E	2023E	1Q 18	2Q 18	3Q 18	4Q 18	1Q 19	2Q 19	3Q 19E	4Q 19E
Gross margin	71.6%	72.4%	71.8%	72.0%	72.2%	72.3%	72.4%	72.9%	72.3%	73.1%	71.3%	72.7%	71.9%	71.9%	71.0%
SG&A	28.0%	27.6%	26.9%	26.5%	26.1%	26.0%	25.9%	26.3%	27.6%	27.2%	29.4%	26.1%	27.0%	25.9%	28.4%
R&D	13.8%	13.2%	13.7%	13.3%	13.0%	12.9%	12.8%	12.0%	12.7%	12.3%	15.8%	14.3%	13.0%	12.8%	14.8%
EBITDA	33.3%	34.7%	34.8%	36.8%	38.6%	39.7%	40.6%	37.8%	35.1%	36.7%	29.3%	35.5%	35.1%	36.7%	32.1%
Operating margin (adj)	**29.8%**	**31.6%**	**31.3%**	**32.2%**	**33.2%**	**33.4%**	**33.7%**	**34.6%**	**32.1%**	**33.5%**	**26.1%**	**32.4%**	**31.9%**	**33.1%**	**27.8%**
Tax rate, % EBT	17.2%	16.4%	18.0%	16.5%	16.5%	16.5%	16.5%	17.8%	18.5%	17.6%	11.1%	17.6%	19.3%	19.0%	15.5%
Net income (adj)	26.2%	27.4%	28.3%	28.4%	28.8%	28.9%	29.1%	28.2%	27.5%	27.5%	26.3%	28.3%	33.8%	27.3%	24.1%

Cash Flow	2017	2018	2019E	2020E	2021E	2022E	2023E	1Q 18	2Q 18	3Q 18	4Q 18	1Q 19	2Q 19	3Q 19E	4Q 19E
FCF	17,777	18,531	20,297	29,633	32,153	33,919	35,716	2,948	5,204	5,453	4,926	2,887	4,829	6,686	5,895
FCF, % sales	23%	23%	25%	35%	36%	37%	38%	15%	25%	27%	24%	14%	23%	33%	28%
FCF:Adj. NI	89%	83%	88%	122%	124%	127%	129%	52%	91%	98%	92%	51%	69%	122%	117%
FCF/share	$6.48	$6.79	$7.56	$11.16	$12.16	$12.89	$13.63	$1.08	$1.91	$2.00	$1.81	$1.07	$1.79	$2.49	$2.21
Cash from Operations	21,056	22,201	23,584	33,407	36,151	37,991	39,930	3,606	6,079	6,272	6,244	3,543	5,648	7,502	7,199
Cash from Investing	(14,868)	(3,167)	(10,327)	(10,506)	(10,730)	(10,804)	(10,946)	(925)	(201)	(4,269)	2,228	(1,417)	(2,502)	(2,499)	(2,987)
Cash from Financing	(7,673)	(18,510)	(17,919)	(18,899)	(14,715)	(14,688)	(14,538)	(5,970)	(2,674)	(3,477)	(6,389)	(5,516)	(4,528)	(4,521)	(4,362)
Change in cash	**(1,148)**	**283**	**(4,662)**	**4,002**	**10,706**	**12,499**	**14,446**	**(3,185)**	**2,930**	**(1,513)**	**2,051**	**(3,373)**	**(1,382)**	**482**	**(150)**
Capex	(3,279)	(3,670)	(3,595)	(3,774)	(3,998)	(4,072)	(4,214)	(658)	(875)	(819)	(1,318)	(656)	(819)	(816)	(1,304)
Acquisitions, net	(35,151)	(899)	(6,732)	(6,732)	(6,732)	(6,732)	(6,732)	(82)	(140)	(675)	(2)	(1,683)	(1,683)	(1,683)	(1,683)
Buy backs	(6,358)	(5,868)	(8,824)	(9,415)	(5,380)	(5,380)	(5,380)	(1,444)	(145)	(471)	(3,808)	(2,206)	(2,206)	(2,206)	(2,206)

Balance Sheet	2017	2018	2019E	2020E	2021E	2022E	2023E	1Q 18	2Q 18	3Q 18	4Q 18	1Q 19	2Q 19	3Q 19E	4Q 19E
Total Assets	157,303	152,954	148,945	156,418	169,517	182,884	197,700	156,625	155,365	155,703	152,954	150,027	146,221	146,903	148,945
Current Assets	43,088	46,033	38,428	43,868	55,853	69,044	84,453	42,768	45,438	47,194	46,033	41,987	37,410	37,367	38,428
LT Assets	114,215	106,921	110,517	112,550	113,665	113,840	113,248	113,857	109,927	108,509	106,921	108,040	108,811	109,536	110,517
Book Value of Equity	60,160	59,752	63,597	69,797	81,769	94,525	108,489	63,255	62,889	64,626	59,752	58,955	61,565	62,715	63,597
Total Liabilities	97,143	93,202	85,348	86,620	87,748	88,359	89,212	93,370	92,476	91,077	93,202	91,072	84,656	84,187	85,348
Cash + Marketable Securities	18,296	19,687	14,286	18,288	28,994	41,493	55,939	15,204	18,139	19,364	19,687	15,336	13,954	14,436	14,286
Total Debt	34,581	30,480	29,368	29,368	29,368	29,368	29,368	32,533	32,083	31,253	30,480	29,368	29,368	29,368	29,368
Net Debt	16,285	10,793	15,082	11,080	374	(12,125)	(26,571)	17,329	13,944	11,889	10,793	14,032	15,414	14,932	15,082
Net Debt:EBITDA	0.6x	0.4x	0.5x	0.4x	0.0x	-0.3x	-0.7x	0.6x	0.5x	0.4x	0.5x	0.5x	0.5x	0.5x	0.6x
Total Debt:EBITDA	1.4x	1.1x	1.0x	0.9x	0.8x	0.8x	0.8x	1.1x	1.1x	1.0x	1.3x	1.0x	1.0x	1.0x	1.1x
NOPAT (All in)	18,827	21,518	20,937	23,049	24,871	25,699	26,807								
ROIC (All in)	20%	20%	19%	20%	21%	22%	23%								
ROIC (Tangible)	68%	80%	65%	56%	52%	48%	46%								

Source: Company reports; Bernstein estimates & analysis

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EXHIBIT 31: **MDT Financial Statements**

Adjusted Income	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	1Q 19	2Q 19	3Q 19	4Q 19	1Q 20	2Q 20E	3Q 20E	4Q 20E
Cardiac & Vascular	10,498	11,354	11,505	11,691	12,188	12,688	13,188	13,709	2,811	2,858	2,786	3,050	2,790	2,867	2,869	3,165
Minimally Invasive Therapies	9,919	8,716	8,478	8,794	9,178	9,547	9,932	10,333	2,052	2,047	2,124	2,255	2,100	2,127	2,212	2,355
Restorative Therapies	7,366	7,743	8,183	8,512	8,916	9,278	9,631	9,966	1,949	1,993	2,026	2,215	2,012	2,071	2,110	2,318
Diabetes	1,927	2,140	2,391	2,521	2,697	2,886	3,088	3,305	572	583	610	626	592	593	656	679
Sales (adj)	**29,710**	**29,953**	**30,557**	**31,518**	**32,980**	**34,399**	**35,839**	**37,312**	**7,384**	**7,481**	**7,546**	**8,146**	**7,494**	**7,659**	**7,847**	**8,518**
COGS (adj)	9,233	8,982	9,057	9,613	10,042	10,457	10,877	11,305	2,187	2,179	2,243	2,448	2,328	2,315	2,380	2,590
Gross profit (adj)	**20,477**	**20,971**	**21,500**	**21,905**	**22,938**	**23,942**	**24,962**	**26,007**	**5,197**	**5,302**	**5,303**	**5,698**	**5,166**	**5,344**	**5,468**	**5,928**
R&D	2,193	2,256	2,330	2,337	2,380	2,448	2,514	2,580	585	590	561	594	582	583	568	604
SG&A	9,711	9,947	10,157	10,230	10,606	11,011	11,436	11,868	2,538	2,554	2,500	2,565	2,485	2,561	2,553	2,631
Other operating expense, net	222	444	141	56	99	82	96	95	60	73	38	-30	-18	25	24	26
Operating income (adj)	**8,351**	**8,324**	**8,872**	**9,282**	**9,853**	**10,402**	**10,916**	**11,464**	**2,014**	**2,085**	**2,204**	**2,569**	**2,117**	**2,175**	**2,324**	**2,668**
Other non-operating (inc) expense		-425	-311	-377	-425	-555	-689	-827	-76	-77	-64	-94	-102	-95	-85	-95
Net interest expense	728	1,108	959	722	709	709	709	709	242	241	243	233	196	175	175	175
Earnings before taxes (adj)	**7,623**	**7,641**	**8,223**	**8,938**	**9,569**	**10,248**	**10,896**	**11,581**	**1,847**	**1,921**	**2,025**	**2,430**	**2,023**	**2,095**	**2,234**	**2,587**
Taxes (adj)	1,229	1,108	1,133	1,431	1,483	1,558	1,634	1,737	245	261	274	353	319	340	357	414
Net income (adj)	**6,394**	**6,533**	**7,089**	**7,507**	**8,086**	**8,690**	**9,262**	**9,844**	**1,601**	**1,660**	**1,751**	**2,077**	**1,704**	**1,754**	**1,876**	**2,173**
Diluted EPS (adj)	**$4.60**	**$4.77**	**$5.22**	**$5.58**	**$6.11**	**$6.71**	**$7.31**	**$7.95**	**$1.17**	**$1.22**	**$1.29**	**$1.54**	**$1.26**	**$1.30**	**$1.40**	**$1.62**
Avg Diluted Shares (M)	1,391	1,368	1,358	1,346	1,322	1,294	1,266	1,238	1,365	1,361	1,353	1,351	1,352	1,348	1,344	1,340
EBITDA	**9,288**	**9,145**	**9,767**	**10,176**	**10,807**	**11,398**	**11,966**	**12,562**	**2,234**	**2,291**	**2,443**	**2,799**	**2,327**	**2,398**	**2,554**	**2,898**

Growth Rates (YoY)	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	1Q 19	2Q 19	3Q 19	4Q 19	1Q 20	2Q 20E	3Q 20E	4Q 20E
Organic Growth																
Cardiac & Vascular	3.0%	6.0%	2.9%	2.7%	4.2%	4.1%	3.9%	3.9%	5.0%	4.4%	1.6%	1.1%	1.4%	1.4%	3.6%	4.3%
Minimally Invasive Therapies	4.0%	4.0%	5.8%	5.0%	4.4%	4.0%	4.0%	4.0%	4.9%	6.8%	6.6%	5.1%	4.8%	5.2%	4.9%	5.0%
Restorative Therapies	2.0%	4.0%	6.6%	4.7%	4.8%	4.1%	3.8%	3.5%	6.8%	7.8%	5.5%	6.5%	4.6%	4.6%	4.5%	5.0%
Diabetes	4.0%	9.0%	13.4%	6.4%	7.0%	7.0%	7.0%	7.0%	26.3%	27.5%	6.5%	0.6%	5.4%	2.8%	8.0%	9.0%
Total Organic Growth	**3.0%**	**5.0%**	**5.5%**	**4.1%**	**4.6%**	**4.3%**	**4.2%**	**4.1%**	**6.8%**	**7.5%**	**4.4%**	**3.6%**	**3.5%**	**3.4%**	**4.5%**	**5.0%**
FX	-0.1%	1.7%	-1.5%	-1.0%	0.0%	0.0%	0.0%	0.0%	1.1%	-1.3%	-2.0%	-3.5%	-2.0%	-1.0%	-0.5%	-0.5%
M&A	0.2%	-5.8%	-2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-7.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Reported Growth	**3.0%**	**0.8%**	**2.0%**	**3.1%**	**4.6%**	**4.3%**	**4.2%**	**4.1%**	**-0.1%**	**6.1%**	**2.4%**	**0.0%**	**1.5%**	**2.4%**	**4.0%**	**4.6%**
EBITDA	3.0%	-1.5%	6.8%	4.2%	6.2%	5.5%	5.0%	5.0%	4.7%	9.5%	8.5%	4.9%	4.2%	4.7%	4.5%	3.5%
EBIT (adj)	2.8%	-0.3%	6.6%	4.6%	6.2%	5.6%	4.9%	5.0%	3.2%	11.3%	7.7%	4.8%	5.1%	4.3%	5.4%	3.8%
EPS (adj)	5.2%	3.9%	9.4%	6.8%	9.6%	9.8%	8.9%	8.7%	4.7%	14.4%	10.0%	8.2%	7.5%	6.7%	7.9%	5.5%

Key ratios	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	1Q 19	2Q 19	3Q 19	4Q 19	1Q 20	2Q 20E	3Q 20E	4Q 20E
Gross margin	68.9%	70.0%	70.4%	69.5%	69.6%	69.6%	69.7%	69.7%	70.4%	70.9%	70.3%	69.9%	68.9%	69.8%	69.7%	69.6%
SG&A	32.7%	33.2%	33.2%	32.5%	32.2%	32.0%	31.9%	31.8%	34.4%	34.1%	33.1%	31.5%	33.2%	33.4%	32.5%	30.9%
R&D	7.4%	7.5%	7.6%	7.4%	7.2%	7.1%	7.0%	6.9%	7.9%	7.9%	7.4%	7.3%	7.8%	7.6%	7.2%	7.1%
EBITDA	31.3%	30.5%	32.0%	32.3%	32.8%	33.1%	33.4%	33.7%	30.2%	30.6%	32.4%	34.4%	31.0%	31.3%	32.5%	34.0%
Operating margin (adj)	**28.1%**	**27.8%**	**29.0%**	**29.5%**	**29.9%**	**30.2%**	**30.5%**	**30.7%**	**27.3%**	**27.9%**	**29.2%**	**31.5%**	**28.2%**	**28.4%**	**29.6%**	**31.3%**
Incremental adj. operating margin	25.5%	-11.1%	90.7%	42.7%	39.1%	38.6%	35.7%	37.2%	-1043%	49.0%	88.7%	5850.0%	94%	50.4%	39.7%	26.5%
Tax rate, % EBT	16.1%	14.5%	13.8%	16.0%	15.5%	15.2%	15.0%	15.0%	13.3%	13.6%	13.5%	14.5%	15.8%	16.3%	16.0%	16.0%
Net income (adj)	21.5%	21.8%	23.2%	23.8%	24.5%	25.3%	25.8%	26.4%	21.7%	22.2%	23.2%	25.5%	22.7%	22.9%	23.9%	25.5%

Cash Flow	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	1Q 19	2Q 19	3Q 19	4Q 19	1Q 20	2Q 20E	3Q 20E	4Q 20E
FCF	5,626	3,616	5,873	6,938	8,264	8,956	9,497	10,108	1,411	957	1,753	1,752	1,209	1,609	1,835	2,286
FCF, % sales	19%	12%	19%	22%	25%	26%	26%	27%	19%	13%	23%	22%	16%	21%	23%	27%
FCF:Adj. NI	88%	55%	83%	92%	102%	103%	103%	103%	88%	58%	100%	84%	71%	92%	98%	105%
FCF/share	$4.04	$2.64	$4.33	$5.15	$6.25	$6.92	$7.50	$8.16	$1.03	$0.70	$1.30	$1.30	$0.89	$1.19	$1.37	$1.71
Cash from Operations	6,880	4,684	7,007	8,097	9,476	10,214	10,811	11,474	1,702	1,163	2,055	2,087	1,510	1,848	2,126	2,614
Cash from Investing	(1,571)	5,858	(774)	(1,409)	(1,212)	(1,258)	(1,314)	(1,366)	643	121	(1,009)	(529)	(551)	(239)	(291)	(328)
Cash from Financing	(3,283)	(11,954)	(5,431)	(3,016)	(4,963)	(5,447)	(5,869)	(6,349)	(1,573)	(1,730)	(1,268)	(860)	(274)	(907)	(914)	(921)
Change in cash	**2,091**	**(1,298)**	**724**	**3,674**	**3,301**	**3,509**	**3,628**	**3,759**	**711**	**(469)**	**(208)**	**690**	**687**	**702**	**921**	**1,365**
Capex	(1,254)	(1,068)	(1,134)	(1,159)	(1,212)	(1,258)	(1,314)	(1,366)	(291)	(206)	(302)	(335)	(301)	(239)	(291)	(328)
Acquisitions, net	(1,324)	(137)	(1,827)	(145)	0	0	0	0	(104)	(15)	(1,496)	(212)	(145)	0	0	0
Buy backs	(3,544)	(2,171)	(2,877)	(1,446)	(2,782)	(3,012)	(3,260)	(3,529)	(824)	(1,223)	(681)	(149)	(333)	(364)	(371)	(378)

Balance Sheet	2017	2018	2019	2020E	2021E	2022E	2023E	2024E	1Q 19	2Q 19	3Q 19	4Q 19	1Q 20	2Q 20E	3Q 20E	4Q 20E
Total Assets	99,816	91,393	89,694	94,939	99,043	103,234	107,614	112,108	89,721	88,150	88,730	89,694	91,268	92,109	93,254	94,939
Current Assets	24,873	22,980	21,967	27,545	33,169	38,884	44,782	50,793	22,460	21,653	20,877	21,967	22,705	23,982	25,515	27,545
LT Assets	74,943	68,413	67,727	67,395	65,874	64,350	62,832	61,315	67,261	66,497	67,853	67,727	68,563	68,127	67,739	67,395
Book Value of Equity	50,416	50,822	50,212	53,787	57,223	60,792	64,525	68,375	50,329	49,714	49,941	50,212	50,497	51,417	52,454	53,787
Total Liabilities	49,400	40,571	39,482	41,152	41,820	42,442	43,089	43,733	39,392	38,436	38,789	39,482	40,771	40,692	40,800	41,152
Cash + Marketable Securities	13,708	11,227	9,848	15,014	20,093	25,388	30,799	36,342	11,004	10,133	9,142	9,848	10,683	11,837	13,206	15,014
Total Debt	33,441	25,757	25,324	26,262	26,262	26,262	26,262	26,262	25,223	25,016	25,030	25,324	26,262	26,262	26,262	26,262
Net Debt	19,733	14,530	15,476	11,248	6,169	874	(4,537)	(10,080)	14,219	14,883	15,888	15,476	15,579	14,425	13,056	11,248
Net Debt:EBITDA	2.1x	1.6x	1.6x	1.1x	0.6x	0.1x	-0.4x	-0.8x	1.6x	1.6x	1.6x	1.4x	1.7x	1.5x	1.3x	1.0x
Total Debt:EBITDA	3.6x	2.8x	2.6x	2.6x	2.4x	2.3x	2.2x	2.1x	2.8x	2.7x	2.6x	2.3x	2.8x	2.7x	2.6x	2.3x
NOPAT (All in)	4,471	5,687	6,128	6,290	6,823	7,306	7,763	8,228								
ROIC (All in)	5.6%	7.5%	8.5%	8.7%	9.5%	10.4%	11.3%	12.2%								
ROIC (Tangible)	25.6%	52.3%	52.4%	47.3%	49.5%	51.7%	53.3%	55.0%								

Source: Company reports, Bernstein estimates & analysis

DISCLOSURE APPENDIX

TICKER TABLE

Ticker	Rating		5 Sep 2019 Closing Price	Target Price	TTM Rel. Perf.		EPS Reported 2018A	2019E	2020E	P/E Reported 2018A	2019E	2020E
ISRG	O	USD	508.17	635.00	(8.3)%	USD	10.99	12.23	14.39	46.26	41.56	35.32
JNJ	M	USD	128.58	148.00	(8.4)%	USD	8.18	8.62	9.16	15.72	14.91	14.03
MDT	M	USD	107.72	114.00	9.1%	USD	5.22	5.58	6.11	20.63	19.31	17.62
SPX			2,976.00				159.61	162.91	179.71	18.65	18.27	16.56

O - Outperform, M - Market-Perform, U - Underperform, N – Not Rated

MDT base year is 2019;.

VALUATION METHODOLOGY

Intuitive Surgical Inc

ISRG: Our target price for ISRG is based on a 40.5x target P/E multiple, applied to our next twelve months' estimates, twelve months hence. The P/E target reflects observed absolute and relative historical multiples and our outlook for forward growth.

Johnson & Johnson

JNJ: Our target price for JNJ is based on a 15.5x target P/E multiple, applied to our next twelve months' estimates, twelve months hence. The P/E target reflects observed absolute and relative historical multiples and our outlook for forward growth. We also use current EV/EBITDA vs. history and DCFs as secondary inputs to our valuation.

Medtronic PLC

MDT: Our target price for MDT is based on a 17x target P/E multiple, applied to our next twelve months' estimates, twelve months hence. The P/E target reflects observed absolute and relative historical multiples and our outlook for forward growth.

RISKS

Intuitive Surgical Inc

Downside risks include: Major product recall, earlier than expected introduction of surgical robots from major competitors, changes in treatment guidelines for critical procedures (prostatectomy, hysterectomy, etc.), changes to the economic environment that significantly reduce healthcare spending levels.

Johnson & Johnson

Downside risks include: A major product recall; the risk that certain important brands face generic competition earlier than we currently model or erosion rates are faster than anticipated; the risk that key pipeline products fail; the risk that the company will overpay for acquisitions to make up for sluggish revenue growth throughout the portfolio; and / or market-wide deceleration across JNJ's end markets.

Upside risks include: The risk that JNJ has more pipeline success than what we forecast (Pharma and/or Devices); faster than expected growth in specific large verticals (notably Surgery, Orthopedics, or consumer health); and / or specific major product recalls at competitors.

Medtronic PLC

Downside risks include: A major product recall; the risk that key products fail to grow as expected; the risk that the company will overpay for acquisitions to make up for sluggish revenue growth throughout the portfolio; and / or market-wide deceleration across MDT's end markets.

Upside risks include: The risk that MDT has more success with the product pipeline than we forecast; faster than expected growth in specific large verticals (notably Surgery, DES, or Rhythm); and / or specific major product recalls at competitors. We

also acknowledge the risk that economic value / bundling could become a more important factor in hospital purchasing decisions than we anticipate, which could benefit MDT.

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  Outperform: Stock will outpace the market index by more than 15 pp in the year ahead.

  Market-Perform: Stock will perform in line with the market index to within +/-15 pp in the year ahead.

  Underperform: Stock will trail the performance of the market index by more than 15 pp in the year ahead.

  Not Rated: The stock Rating, Target Price and/or estimates (if any) have been suspended temporarily.
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12-Month Rating History as of 09/05/2019

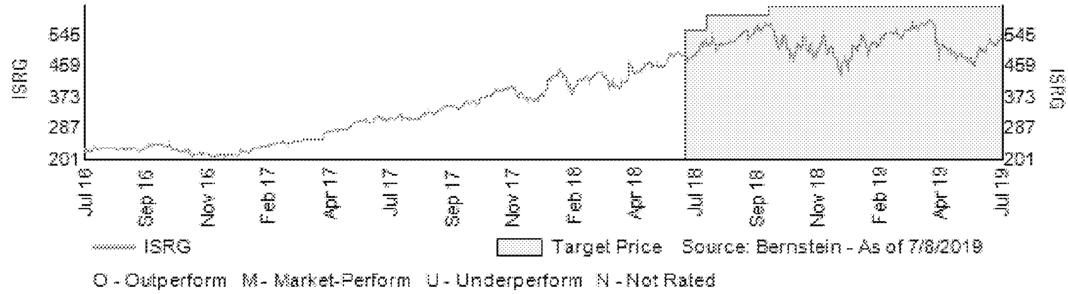
Ticker	Rating Changes
ISRG	O (IC) 06/26/18
JNJ	M (IC) 06/26/18
MDT	M (IC) 06/26/18

Rating Guide: O - Outperform, M - Market-Perform, U - Underperform, N - Not Rated
Rating Actions: IC - Initiated Coverage, DC - Dropped Coverage, RC - Rating Change

ISRG / Intuitive Surgical Inc

Date	Rating	Target(USD)
06/26/18	O(IC)	560.00
07/20/18	O	600.00
10/04/18	O	625.00

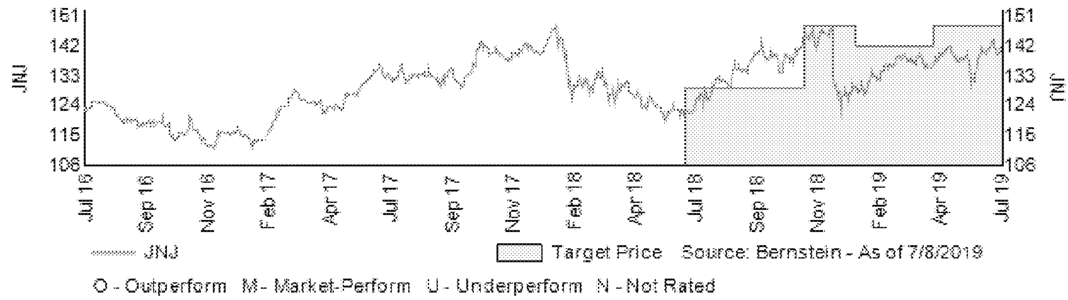
IC - Initiated Coverage



JNJ / Johnson & Johnson

Date	Rating	Target(USD)
06/26/18	M(IC)	129.00
11/14/18	M	148.00
01/14/19	M	142.00
04/17/19	M	148.00

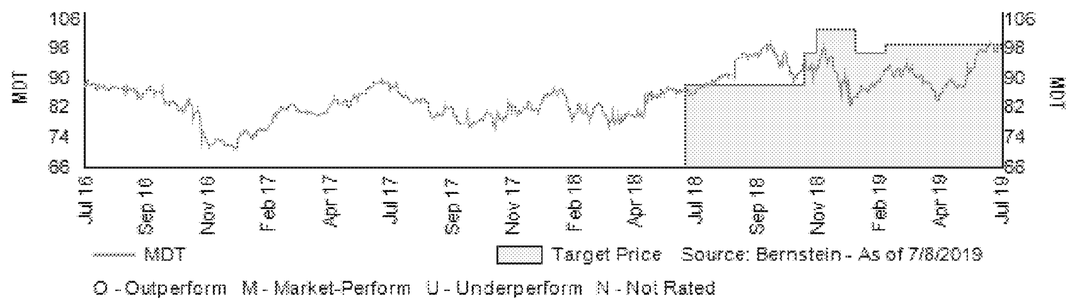
IC - Initiated Coverage



MDT / Medtronic PLC

Date	Rating	Target(USD)
06/26/18	M(IC)	88.00
11/14/18	M	97.00
11/30/18	M	103.00
01/14/19	M	97.00
02/20/19	M	99.00

IC - Initiated Coverage



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